



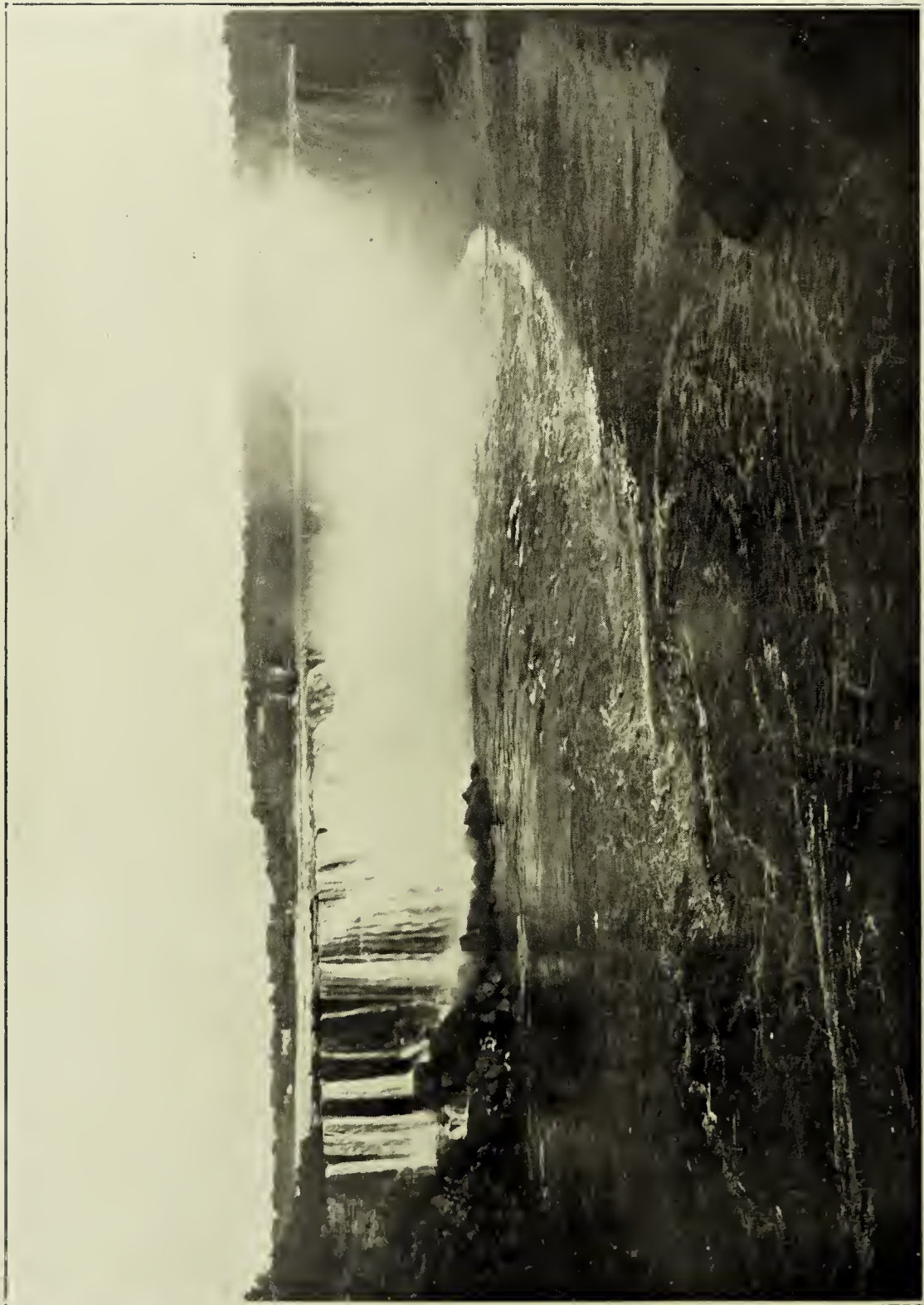
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NIAGARA, ONTARIO, CANADA
A View of the World - famous Falls

THE
ENCYCLOPEDIA
OF THE
BRITISH EMPIRE

THE FIRST ENCYCLOPEDIC RECORD
OF THE GREATEST EMPIRE IN
THE HISTORY OF THE WORLD

EDITED BY
CHARLES W. DOMVILLE-FIFE

Illustrated with 2000 Photographs and Maps

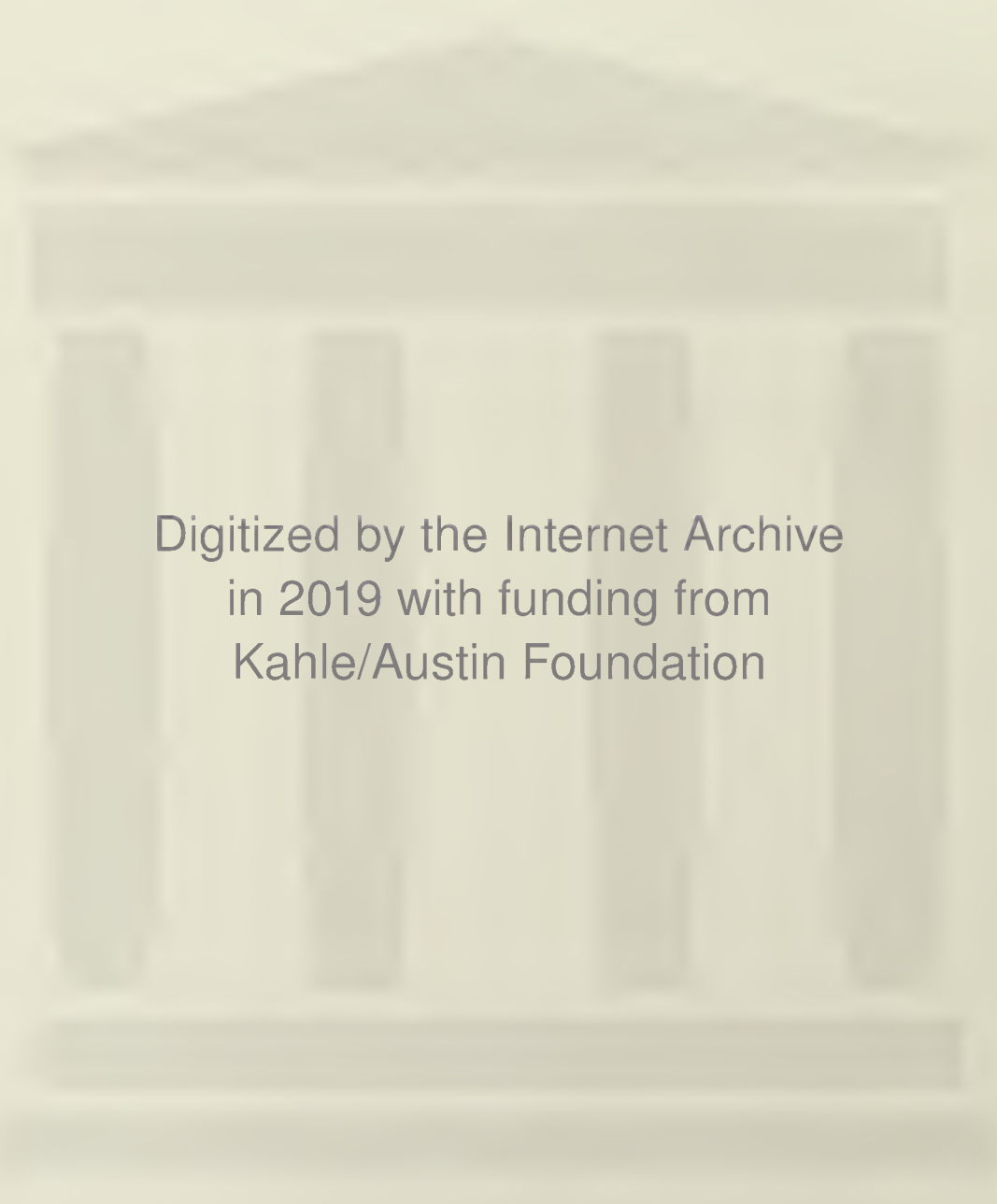
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THE ENCYCLOPEDIA OF THE BRITISH EMPIRE

CONTENTS OF VOLUME IV.

LAND AND CONDITIONS OF SETTLEMENT.		PAGE
Land and Conditions of Settlement	·	1245
Australia	·	1245
Administration of Crown Lands	·	1247
Classification of Lands	·	1247
Free Grants	·	1248
Freehold Purchase	·	1248
Conditional Purchase	·	1248
Leases	·	1250
Closer Settlement	·	1250
Financial Assistance	·	1250
Capital Required	·	1251
Canada	·	1252
Colony Making	·	1254
Available Lands	·	1254
Homestead Duties	·	1255
Provincial Lands	·	1256
Empire Settlement Act	·	1256
Canadian Pacific and Hudson's Bay Company Farms	·	1256
Farms on the Instalment System	·	1258
Correspondence Course in Canadian Farming	·	1258
Agricultural Education in Canada	·	1258
Agricultural Colleges and Practical Farm Training	·	1258
New Zealand	·	1260
Land Tenures	·	1262
Village Settlement	·	1264
Improved Farms	·	1264
Administration of Lands	·	1264
Classification of Lands	·	1265
Applicants	·	1266
Mode of Acquiring Crown Lands	·	1266
The Optional System of Selection	·	1266
Residence and Improvements	·	1267
Credit System	·	1268
Southern Rhodesia	·	1268
Union of South Africa	·	1272
South-West Africa	·	1274
Assistance to Settlers	·	1274
Crown Colonies	·	1276
Kenya	·	1276
Malay States	·	1276
British Guiana and Honduras	·	1277
Other Colonies	·	1278

MALAYA.

	PAGE		PAGE
Malaya : Straits Settlements and Malay States	1279	Jerusalem	1369
Acquisition of Singapore	1279	Bethlehem	1371
The Malay States	1280	Transjordan	1371
The Federation	1282	Iraq (Mesopotamia)	1373
The Native States	1284	Asiatic Empires of the Past	1373
Peninsula and People	1284	British Invasion	1373
The Straits Settlements	1286	Iraq To-day	1375
Singapore	1286	Bagdad	1376
Penang	1291	Bagdad Railway	1378
The Dindings	1294	Irrigation	1378
Malacca	1303	People and Industry	1381
Dependencies	1305	Tanganyika Territory	1383
Federated Malay States	1307	Partition of East Africa	1383
Climate	1308	A Survey of the Territory	1384
Communications	1308	Victoria Nyanza	1385
Through the State of Perak	1312	Central Tanganyika	1388
Taiping	1314	Lake Tanganyika	1390
Kangsar	1316	Dar-es-Salaam	1390
Ipoh	1318	South-West Africa	1392
State of Pahang	1320	Rivers and Mountains	1402
State of Selangor	1320	Mining	1404
The Federal Capital	1322	Native Races	1406
On a Rubber Plantation	1324	Finance	1406
Port Swettenham	1324	Settlements	1406
State of Negri Sembilan	1325	Transport	1408
The Rubber Industry	1326	Walvis Bay	1408
Harvesting Rubber	1332	Togoland	1411
Preparation and Marketing	1332	Cameroon	1411
Tin Mining	1334	New Guinea and the Western Pacific	1414
The Coco-nut Industry	1335	Territory of New Guinea	1417
Harvesting the Crops	1340	Topography and Climate	1418
The Native States of Malaya	1343	Settlements	1420
		New Britain Archipelago	1420
		Solomon Islands	1420
		Western Samoa and Nauru Islands	1420

MALTA.

Malta	1344
Romantic Past	1344
In the Days of Cross and Crescent	1344
Climate and People	1345
Valetta and the Island	1347
Citta Vecchia	1349

MANDATORY TERRITORIES.

Mandatory Territories	1351
League of Nations	1351
Palestine	1354
At the Dawn of History	1355
The Ottoman Empire	1356
The Holy Land	1357
A Polyglot People	1367

MANUFACTURING INDUSTRY.

Manufacturing Industry	1423
Industrial Centres of England and Wales	1423
Industrial Centres of Scotland	1424
Industrial Centres of Ireland	1427
Northern Ireland	1428
Industrial Production of British Isles	1430
Export of Manufactured Goods	1432
Australia	1432
Canada	1434
India	1438
Handicrafts	1439
Modern Manufactures	1441
New Zealand	1442
Union of South Africa	1442
British Empire	1444

MAURITIUS.

	PAGE
Mauritius	1445
The French and English	1445
Island of Paul and Virginia	1447
Port Louis	1453
Dependencies	1454

MERCANTILE MARINE.

Mercantile Marine	1455
Rise of the British Mercantile Marine	1456
Progress in Size and Speed	1458
Shipbuilding	1462
Mercantile Marine of the Dominions	1462
Importance of Sea-borne Trade	1472
Sea-training	1474
Board of Trade	1475
Lloyds	1476
Marine Societies	1478
Pilotage	1480
British Ports and Distances	1481
Inter-Colonial Ports and Distances	1482

MINING.

Mining	1483
British Isles	1483
Australia	1484
Canada	1489
India	1497
Newfoundland	1502
New Zealand	1503
Union of South Africa	1505
Southern Rhodesia	1511
Federated Malay States	1513
Crown Colonies	1515
Gold Coast	1515
British Guiana	1516
Nigeria	1517
Trinidad	1519
British Empire	1520

NATIONALITY.

Nationality : The British Citizen	1521
The British Subject	1521
Loss of British Nationality	1521
Acquiring British Nationality	1521
Entry of Aliens	1522
British Passports	1522

NEWFOUNDLAND AND LABRADOR.

	PAGE
Newfoundland and Labrador	1523
First English Colony	1523
French Claims	1523
Newfoundland To-day	1526
The Norway of the New World	1528
Big Game	1530
St. John's	1532
Agriculture	1536
Mining and Lumbering	1537
Stock Raising	1538
Fisheries	1540
The Tragedy of the Caplin	1542
The Value of the Squid	1544
The Banks	1544
Icebergs	1546
Looming	1548
Whaling and Sealing	1548
Labrador	1548
Early Exploration and Settlements	1552
People of Labrador	1552
Climate	1554
Forests and Vegetation	1555
Minerals	1555

NEW ZEALAND.

New Zealand	1558
Dawn in the Pacific	1558
The Stewart Incident	1562
A Dependency of New South Wales	1563
French Claims	1563
The New Zealand Company	1564
Cession to Great Britain	1564
The New Zealand War	1566
Modern Development	1568
Rise to Dominion Status	1568
Country and Climate	1570
Stewart Island	1573
South Island	1574
Southern Alps	1574
Christchurch	1579
Dunedin, Invercargill and Nelson	1579
North Island	1591
Volcanoes	1594
Rivers and Islands	1595
Wellington, Capital of New Zealand	1598
Taranaki	1600
New Plymouth	1600
Auckland	1602
Kauri Gum	1604
The Hot Lakes	1606

	PAGE		PAGE
Railways	1607	Cook Islands : Rarotonga	1622
The Maoris	1607	Mangaia	1624
Postal Service	1609	Mauke	1625
Pacific Earthquake Zone	1610	Atiu	1626
Overseas Commerce	1612	Aitutaki	1626
Dependencies of New Zealand	1619	Penrhyn	1627
Auckland Islands	1620	Manihiki	1627
Chatham, Antipodes and Bounty Islands	1620	Small Islands of Cook Group	1628
Kermadec Islands	1621	Niue	1630
		Pacific Island Plantations	1631
		Missions and Education	1632
		Ross Dependency (Antarctic)	1633

M A P S

Malay Peninsula	1285	Newfoundland	1543
Palestine and Iraq	1372	New Zealand	Facing Page 1574
Aden, Arabian Hinterland and Persian Gulf	1382		

For Gazetteer and Index see end of work

LAND

AND

CONDITIONS OF SETTLEMENT

LAND is an imperishable asset with almost limitless possibilities. It is the store from which nearly all that constitutes the wealth of nations and the wealth of individuals is directly or indirectly drawn. An inborn desire for the ownership of land is a characteristic of the British race. In the past it has, in part, been responsible for the acquisition of the British Colonial Empire, in later years it was responsible for the exploration and early development of the lands so won, and in the present era it is again partly responsible for the flood of migrations to, and consequent exploitation of, the vast fertile areas of Greater Britain. These billions of acres in all parts of the world are the direct inheritance of the British race—won by the fathers for the wealth and happiness of their sons.

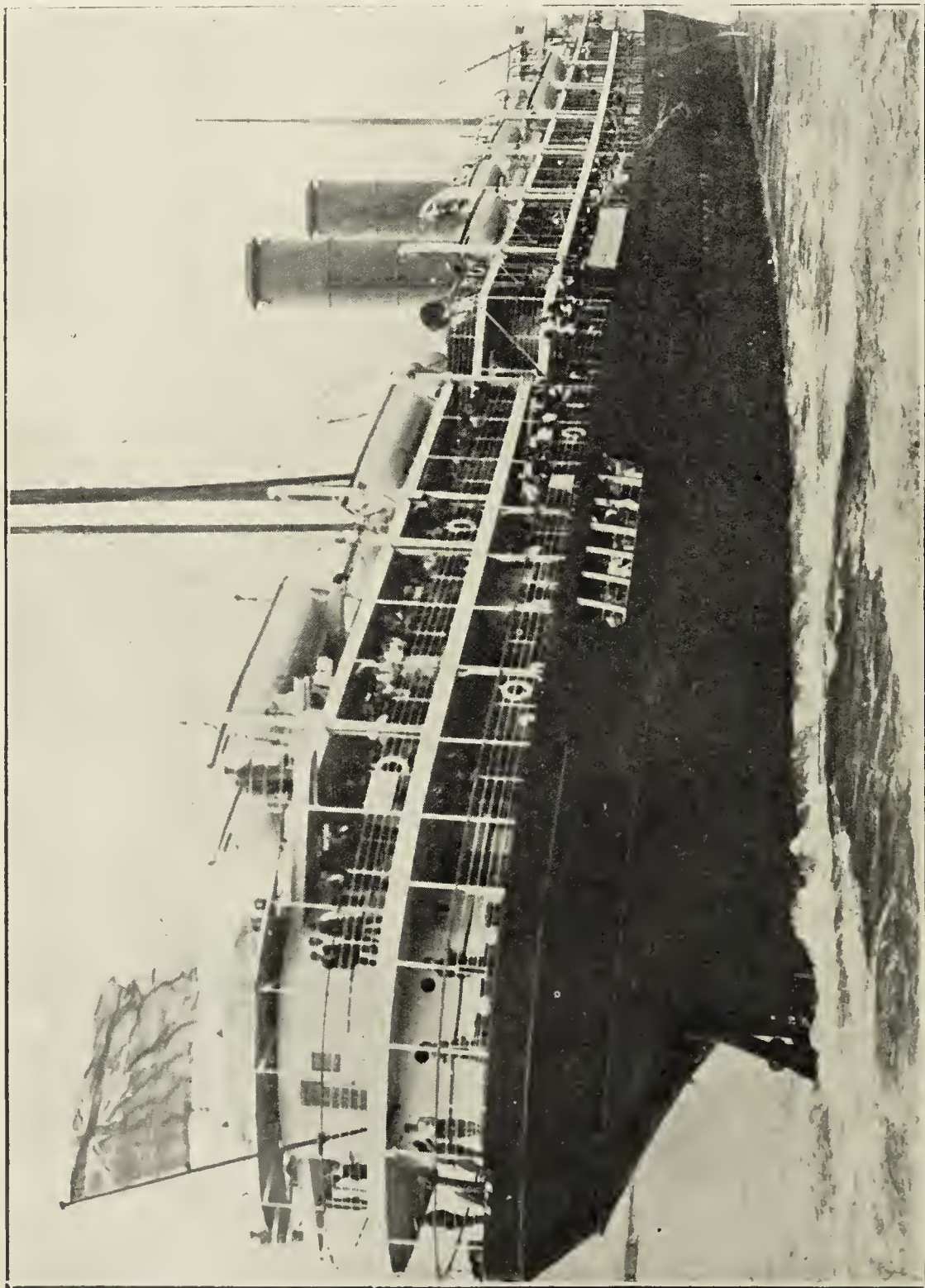
To the great majority of Britishers the desire for land is so strong that it induces them to travel far afield over the broad expanse of Empire, and even into foreign countries, in search of suitable homesteads, ranches, plantations, estates, or other holdings; and it is the purport of this article to show how land can be acquired in all fertile and healthy portions of the great Empire, where there is ample space, and the conditions are suitable for white colonisation and settlement.

Australia

Of the total area of the Commonwealth—1,903,731,840 acres—only about 116,558,000 acres, or less than one sixteenth of the

whole area, have been alienated absolutely, that is to say, the freehold has been sold or granted by the Crown outright. About 62,567,000 acres, or about two and a half per cent. of the whole area, are in process of alienation, or, in other words, are held by settlers who are purchasing the freehold of the land on easy terms by the payment of a small sum annually for a period of years. About 970,604,000 acres, or about fifty per cent. of the whole area, are let by the Crown under leases or licences to occupy for various periods, while the remaining 754,000,000 acres, or nearly one-half of the whole area, are unoccupied.

Of the unoccupied lands, large areas are already available for settlement, while other areas are constantly being opened up by the State Governments. In all the States, also, what are called Closer Settlement Acts have been passed. It has been found that the value of the produce of a large estate, originally considered as being at its full capacity, compares unfavourably with the returns which may be obtained from the same area when subdivided and cultivated by settlers. Under the Acts just mentioned, the State Governments, therefore, repurchase large estates which have in past years been alienated by the Crown, and, after cutting them up into areas of suitable size, throw them open to settlement on easy terms and conditions. The subdivision and sale of lands by private owners is also going on all over the country, but the terms offered by such owners are not, as a rule, nearly so easy as those offered by the Governments, which do



SETTLERS BOUND FOR AUSTRALIA
Orient Liner "Orsova" arriving at Melbourne

Photo, Australian Government



IMMIGRANTS ON BOARD SHIP *Photo, Commonwealth Immigration Office*
Outward bound for a new life in Australia

not desire to make a profit, and which can insist on the permanent occupation of the land by carefully chosen tenants.

ADMINISTRATION OF CROWN LANDS.

In each of the States there is a Lands Department under the direction of a responsible Cabinet Minister who is charged generally with the administration of the Acts relating to the alienation, occupation and management of Crown lands. The administrative functions of most of the Lands Departments are to some extent decentralised by the division of the States into what are usually termed Land Districts, in each of which there is a Lands Office, under the management of a land officer, who deals with applications for selections and other matters generally appertaining to the administration of the Acts within the particular district. In some of the States there is also a local Land Board or a Commissioner for each district or group of districts. In North and Central Australia a Land Board, under the

control of the Commonwealth Minister for Home and Territories, is charged with the general administration of the Lands Ordinance and of Crown Lands in these vast areas. In the Federal Capital Territory the administration of the Leases Ordinance is in the hands of the Commonwealth Minister for Home and Territories.

CLASSIFICATION OF LANDS.

Crown lands are generally classified according to their situation, the suitability of the soil for particular purposes, and the prevailing climatic and other conditions. The modes of tenure, therefore, as well as the amount of purchase money or rent, and the conditions as to improvements and residence, vary considerably. The administration of special Acts relating to Crown Lands is in some cases in the hands of a Board under the general supervision of the Minister, *e.g.*, the Western Lands Board in New South Wales, the Lands Purchase and Management Board in Victoria, and the Closer Settlement Board in Tasmania.

FREE GRANTS.

At present land is not granted in fee-simple, without payment, except for charitable, educational or public purposes, the practice of granting land free for farms having been abolished so far back as 1831. Reservations may be either temporary or permanent and may be made for charitable, educational or religious purposes, as well as for forests and mining. Temporary reservations are subject to considerable fluctuations in area by reason of withdrawals, renotifications and fresh reservations.

gether with particulars as to the upset price and conditions of sale. Usually the purchase may be made either for cash or on credit by deferred payments. Land put up at auction and not sold may generally be purchased by private contract at the upset price. Small areas of crown lands may also be sold without competition under special circumstances.

CONDITIONAL PURCHASE.

In this class are included all tenures in which the issue of the grant is made after the fulfilment of certain conditions as to



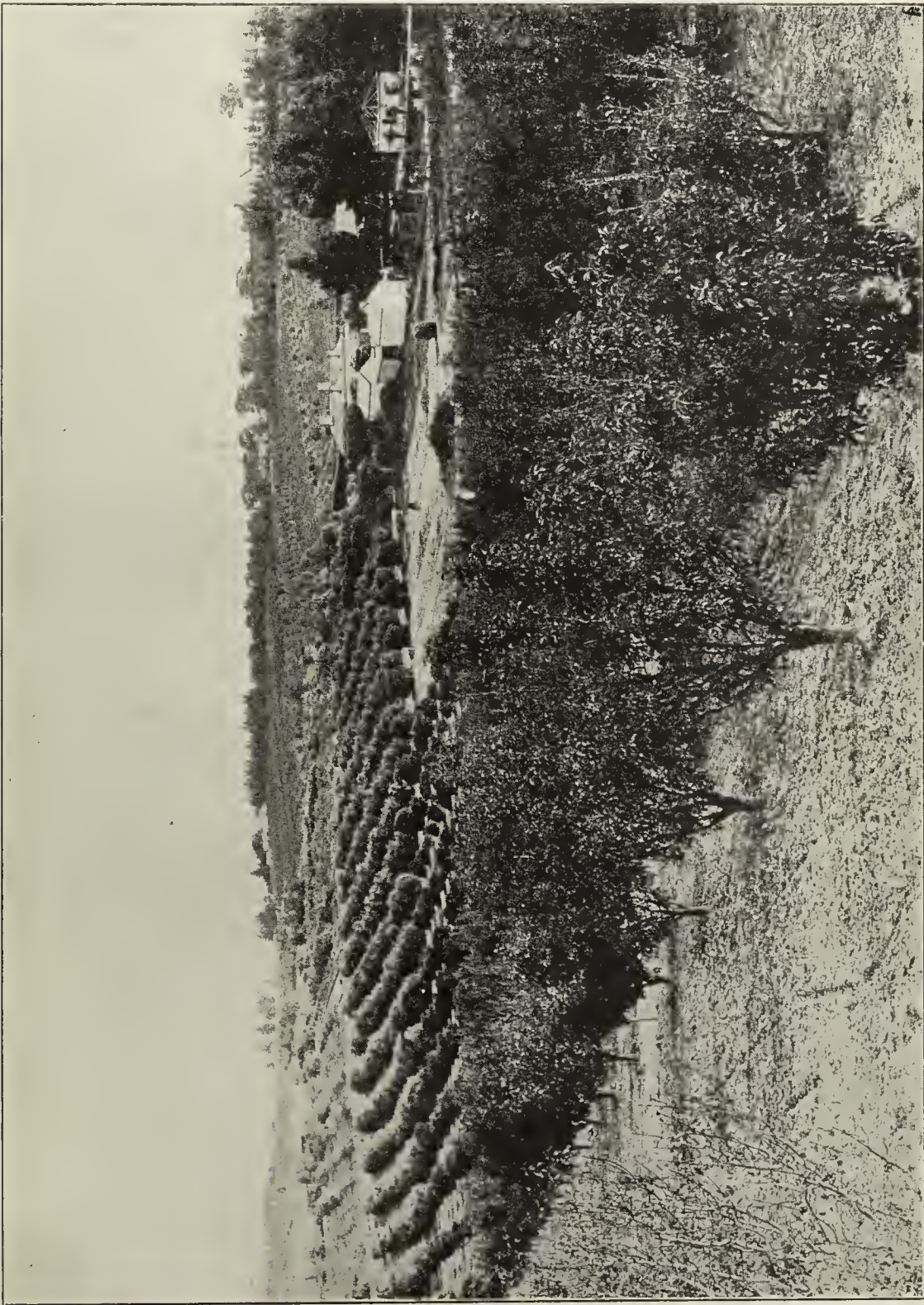
MAKING A START IN AUSTRALIA
A Soldier Settler's first home in the bush

Photo, Commonwealth Immigration Office

FREEHOLD PURCHASE.

This class of tenure includes all methods by which the freehold of Crown lands may be obtained by direct purchase, in which the only condition for the issue of the grant is the payment of the purchase-money. No Crown land is now sold in the Federal Capital Territory. In all other States sales by auction of Crown lands are held from time to time. Notifications of such sales are given in the Government Gazettes, to-

residence or improvements or both, in addition to the payment of the purchase-money, which is usually paid in instalments. This system is in force in all the States, but not in the North or Centre. Though there is considerable similarity between some of the forms of tenure in the several States, the terms and conditions vary greatly in detail. As a rule, a lease or licence for a certain period is first issued to the selector, and upon fulfilment of the prescribed



Photo, Australian Government

AN AUSTRALIAN FRUIT FARM

conditions and payment of the full amount of purchase-money, the freehold is conveyed to him.

LEASES.

In this category is included all forms of occupation of Crown lands for a term of years under leases and licences issued by the Land Departments. The freehold cannot be obtained under these forms of tenure, but in some instances, such tenures may be

CLOSER SETTLEMENT.

In all the States there have been passed Acts authorising the Government to repurchase alienated lands for the purpose of dividing them into blocks of suitable size and throwing them open to settlement on easy terms and conditions. In some States, private land may be acquired compulsorily as well as by agreement with the owners. As a rule land so acquired is open for selection under conditional purchase in the States in which such system exists, though small



A SETTLER'S HOMESTEAD IN VICTORIA
(House built by the Government)

Photo, Australian Government

converted into conditional purchase tenures. Leases and licences are issued in all the States and in North and Central Australia, and in some of them leases are granted in perpetuity, the only condition being the payment of the annual rent, though in certain cases conditions as to residence and improvements must be fulfilled in the earlier years. Comparatively large areas may be leased or occupied under licence for pastoral purposes. Irrigated and other lands are in some States let on perpetual lease subject to re-appraisal in certain cases at stated intervals.

blocks are also sold by auction or otherwise, notably in areas set apart as town sites.

FINANCIAL ASSISTANCE.

In all the States and in the North and Centre provision has been made for advancing money, either out of consolidated revenue or from loans, to settlers for the purpose of acquiring land, removing encumbrances from their holdings, purchasing stock, erecting buildings, making improvements, etc. Advances are also made in



MAIL DAY IN THE BACK BLOCKS

A PASSENGER COACH IN THE BACK BLOCKS *Photos, Australian Government*

some States for the erection or acquisition of wool stores, fruit canneries and similar establishments. The authorities entrusted with the task of making these advances are not the same in all States. In some, the State Savings Bank is the authority; in others, a special Agricultural Bank, the Closer Settlement Board, or the Treasurer, or two or more thereof.

CAPITAL REQUIRED.

The amount of capital required to enable a man to start farming on his own account varies according to his experience and abilities and according to the district and the class of farming, but a fair prospect of success may be looked for in market-gardening with £300; in agriculture and dairying with upwards of £700; fruit-growing only, with £1,000, although banana growers would require a smaller capital.

Sheep and cattle-farming and wine-making entail as a rule the investment of a larger capital.

For sugar-cane growing at least £500 for 80 acres would be necessary.

Share farming, especially in dairying, can be commenced by single men with a capital of £100 or more.

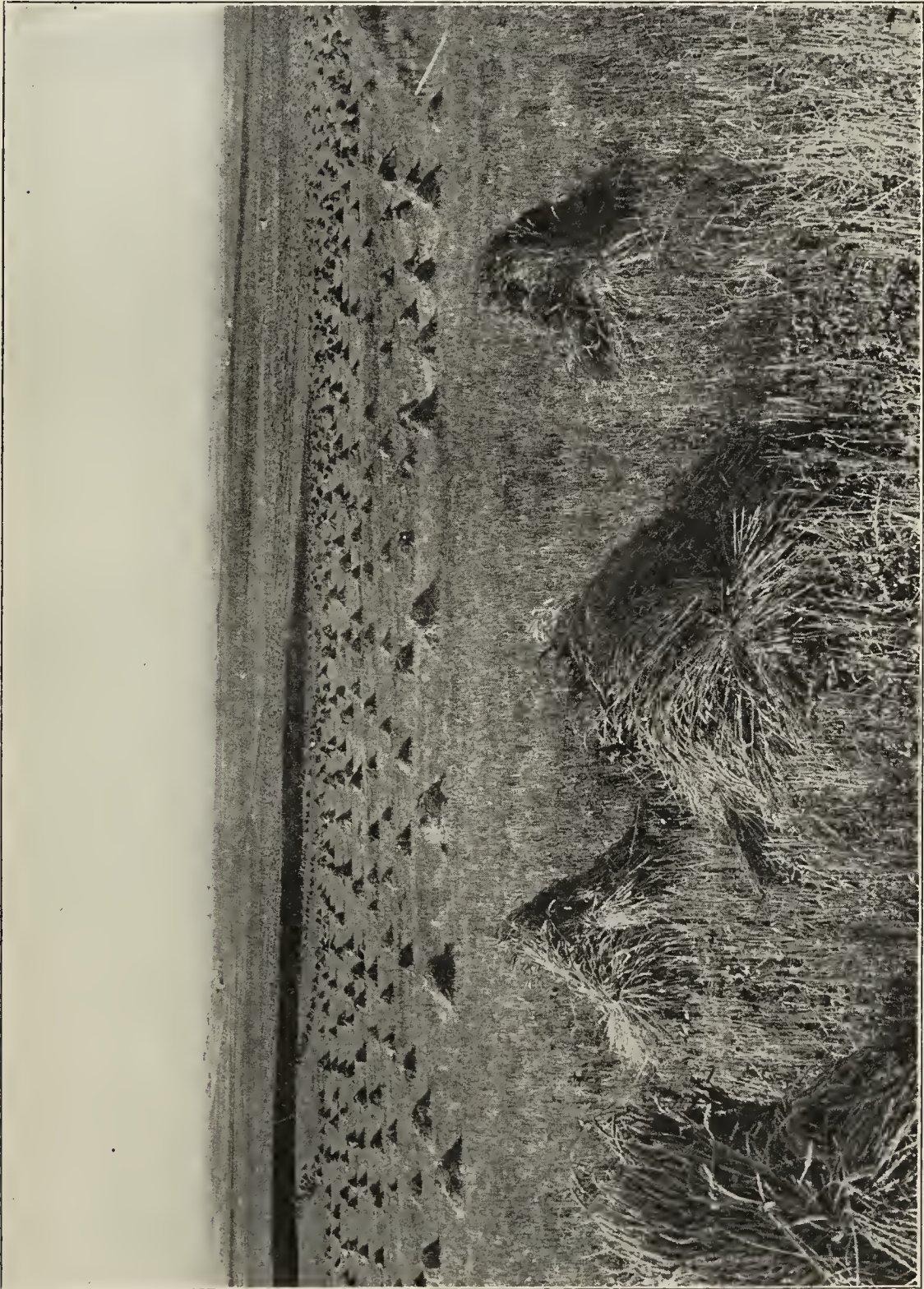
Canada

The Crown lands of the Dominion of Canada are situated in the north-west provinces and in the railway belt of British Columbia. Of these lands large areas are offered in free grants as homesteads for settlers. The lands are laid out in townships of thirty-six sections. Each section contains 640 acres, and is divided into quarter sections of 160 acres. A quarter section of 160 acres may be obtained by a settler on payment of an entry fee and fulfilment of certain conditions of residence and cultivation. To qualify for the issue of the patent for his homestead, a settler must have resided upon his homestead for at least six months in each of three years, must have erected a habitable house thereon, must have at least 30 acres of his holding broken (of which 20 acres must be cropped), and must be a British subject, or have declared his intention of becoming such.



A FARM IN ONTARIO

Photo, Canadian Government



A WHEAT FIELD ON THE ALBERTA PRAIRIE

Photo, Department of Colonisation, Ottawa

The area of surveyed land which still awaits development is about 30,000,000 acres, but, if the past ratio of exploitation is maintained, this vast area will have passed under the plough or the hoofs of domestic animals within very few years.

In these great prairie regions it is but natural to wonder how any given quarter-section of land can be located and recognised. The following information on this important point should be of interest.

COLONY MAKING.

Townships are numbered from south to north, and lie in ranges numbered east and west from the Principal meridian and west from the other meridians.

It will thus be seen that the number of the township, range, and meridian at once fixes the location of the township. Thus, township 50, range 2, west of the Fourth meridian would be the fiftieth township counting north from the International Boundary, lying in the second range, west of the Fourth meridian.

In the survey of these townships, except on a correction line or in some other such special case, only a single row of monuments is placed on a surveyed line to indicate the corners of townships, sections, or quarter-sections. These monuments are placed on the west limit of the road allowance on the north and south lines and on the south limit of the road allowance on east and west lines and on the line between the sections where there are no road allowances. Thus the monument marking the north-east corner of section 11 is placed at the exact corner; the north-west corner of section 12 is one chain (66 feet) to the east (across the road allowance); the south-east corner of section 14 is one chain to the north, and the south-west corner of section 13 is one chain east and one chain north.

In recent years, since the standard bronze-capped survey post has been introduced, it is marked on the top with the number of the various sections, followed by the number of the township and range in which the sections lie.

Where a corner falls in a spot unfavourable to the placing of a monument, the position of the corner is marked by a witness monument placed at a suitable point near by on the survey line. The witness post is

marked like a section post with the addition of the letters Wt, as an abbreviation of "Witness," the distance in chains to the section or quarter-section corner it is intended to mark, and the letters N, S, E, or W. to indicate the direction of the true corner from the witness post. The old style witness post was marked on the side facing the corner with the distance in chains and the direction to the true corner, and on the opposite side with the number of the sections.

The section and quarter-section corners on both sides of a road allowance along correction lines are in all cases marked by two lines of monuments erected and marked independently for the townships on each side.

AVAILABLE LANDS.

All surveyed agricultural Dominion Lands (excepting "School Lands" and "Hudson's Bay Company's Lands") in the provinces of Manitoba, Saskatchewan and Alberta, and in the Peace River Block in the province of British Columbia, which are not disposed of and not reserved or occupied, are open to homestead or soldier grant entry.

"School Lands" consist of sections 11 and 29 in each township.

"Hudson's Bay Company's Lands" consist of sections 8 and the south half and the north-west quarter of section 26, in each township south of the north branch of the Saskatchewan River. In every fifth township, namely, townships numbered five, ten, fifteen, etc., the company acquired the whole of section 26.

Islands which are Dominion Lands in the Provinces of Manitoba, Saskatchewan, and Alberta are reserved from entry.

An entry for a homestead or soldier grant does not include the mineral or water rights.

Every person who is the sole head of a family, and every male who has attained the age of 18 years and is a British subject, or declares intention to become a British subject, is entitled to obtain entry for a homestead to the extent of one quarter-section, on payment of an entry fee of ten dollars.

A widow having minor children of her own dependent on her for support, is permitted to make homestead entry as the sole head of a family.

A widow who re-marries thereby ceases to be the sole head of a family, and is not eligible to make an entry.

Application for homestead or soldier grant entry may be made either at the Land Agency for the district in which the land is situate, or at the office of a sub-agent authorised to transact business in the district.

Every applicant for a homestead or soldier entry shall make a declaration in the form prescribed that to the best of his knowledge

HOMESTEAD DUTIES.

A homesteader is required to perform the residence duties by residing in a habitable house on his homestead at least six months in each year during a term of three years. "Residence," for the purpose of the homestead law, means actual and *bona fide* residence in a dwelling-house by the entrant in person upon the homestead, or in accordance with the vicinity provisions. Residence duties cannot be done by a member of the



NEW SETTLERS AT WORK
Seeding and Harrowing

Photo, Canadian Government

and belief the land with respect to which his application is made is of the class open to entry and that there is no one in residence thereon, and shall state the improvements on the same, if any, and the value thereof. Where such declaration is subsequently found incorrect in any material particular, the entry shall be liable to cancellation.

Surveyed areas in the Provinces of Manitoba, Saskatchewan and Alberta described in the foregoing as "Dominion Lands," have recently been transferred to the respective Provincial Governments. The same conditions of entry apply.

homesteader's family or by any other person as proxy on his behalf.

In all cases the land must be worked during each of the three years. A homesteader is required to break a total of at least 30 acres, of which 20 must be cropped, before applying for the patent which makes the homestead his freehold property. In certain cases, such as the suitability of the land for grazing, the ownership of 16 head of cattle is substituted for the breaking and seeding.

Application for a patent must not be made until the full three years have

completely elapsed from the date of entry of the homestead application, and when made it must be supported by the personal evidence of two disinterested witnesses who are able to testify from direct knowledge that the residence and other duties have been complied with.

PROVINCIAL LANDS.

In the Maritime Provinces, in Quebec and in Ontario, the public lands are administered by the Provincial Governments. In Prince Edward Island all the land is settled. In Nova Scotia there are now no free grants of land. In New Brunswick the virgin lands are practically free. In Quebec the area of public lands surveyed, subdivided into farm lots, and now available for settlement, is approximately 8,192,092 acres. This land is sold at prices varying from 60 cents per acre, in lots of 100 acres. Only one-sixth of the purchase price need be paid down, the balance being payable in five equal annual instalments. On land purchased in this way a suitable house, measuring 16 by 20 feet must be built within 18 months, and must be occupied until the deeds are issued (five years).

The settler who wishes to farm in this Province can obtain land in two ways. He can either buy unimproved or uncleared land at 60 cents an acre, or he can get improved land at from 4,000 dollars to 12,000 dollars per 100 acres, with improvements and buildings, or for 50 dollars an acre, upwards. The partial clearing of land costs from 15 to 20 dollars an acre, and is done by persons accustomed to the work, and who take it by contract.

In Ontario almost all the free grant land in the Province, *exclusive of the district of Patricia*, has been taken up, but there are vast areas still available at about 50 cents per acre.

While much of the best land in Manitoba Saskatchewan, Alberta and British Columbia belonged until 1929-30 to the Dominion, and not to the Provincial Governments, there are millions of acres now available for settlement, and the homestead conditions are those laid down for the acquisition of Dominion lands in all parts of Canada. In addition, vast areas of land are owned by the railway companies, especially in British Columbia, and can be purchased by four yearly instal-

ments at a total price of one to five dollars an acre.

EMPIRE SETTLEMENT ACT.

The land settlement schemes arranged under the above act between the British and Canadian Governments are very diverse in character.

NEW BRUNSWICK.—An arrangement has been made whereby 500 families from the United Kingdom are to be settled during the six years from 1930 to 1936 upon improved farms. The cost of the farms will not exceed £800, and advances not exceeding £300 are made for the purchase of stock and equipment. These advances, plus the purchase price of the farms, are to be repaid by the settlers within a period of 25 years, with interest at five per cent. per annum. Where necessary, the adult members of a family are placed in employment with neighbouring farmers for a time in order that local knowledge and experience may be gained. Families are selected for this scheme by the Director of European Emigration for Canada, Trafalgar Square, London.

CANADIAN PACIFIC AND HUDSON'S BAY COMPANY FARMS.

An arrangement has been made between the British Government, the C.P.R., and the Hudson's Bay Company for the settlement in WESTERN CANADA of 200 British families on improved farms. The families must be eligible for assisted passages, must consist of a man, wife and at least one child or a widower with at least one child and must be in possession of at least £50 on arrival in Canada. This sum will, however, be advanced to the settler in certain cases.

The farms will be at least 160 acres in extent, the necessary buildings will be erected and the land will be partly broken and fenced. The value of the necessary preliminary improvements on any one farm will not exceed 1,200 dollars.

Loans will be made for the purpose of acquiring stock, equipment, seed, feed, etc., and for providing initial operating expenses. The Companies will arrange for the reception and settlement of families and will give expert advice on the management of the farms. Where it is necessary for families to engage in employment for wages, the Companies will

do their best to find suitable employment for adult members during the first year.

The total advances of all descriptions shall not exceed 5,000 dollars in the case of any one family.

The purchase price of land and advances for improvements will be repayable in twenty equal annual instalments, interest being amortized at a rate not exceeding 6 per cent. Loans for the purchase of stock and equipment will be repayable in eight equal annual instalments.

month, but the total period of the lease will not be more than two years for any one family. Suitable families, who, during their tenancy of the cottages have gained practical experience of farming, and have saved a certain amount of money, will then be assisted to settle on improved farms of their own. In such cases the Canadian Pacific Railway Company will provide the farms, on which the necessary buildings will be erected, the land fenced, and a certain amount of ground made ready for cultivation.



Photo, Agent-General for British Columbia

A FARM IN THE OKANAGAN DISTRICT OF BRITISH COLUMBIA

The first repayment will be due one year from the 1st November following the entry of the settler on his farm.

FARM COTTAGES.—The Canadian Pacific Railway and the British Government have entered into an agreement whereby 150 cottages have been built for the temporary accommodation of families from the United Kingdom who intend to work on farms in Canada. Each cottage stands on its own plot of land varying between one and two acres, with direct access to a highway. The rent will not be more than five dollars a

The British Government will make advances up to £100 for the purchase of stock, seed and equipment. These advances, plus the purchase price of the farm, will be repayable by the settlers over a period of 10 years at 5 per cent. interest.

Applicants must be married or widowers with at least one child. The Canadian Pacific Railway Company guarantees to find farm employment for the head of the family and for such adult members of the family who are able and willing to undertake such work.

A similar scheme has been arranged between His Majesty's Government, the Canadian National Railways and the White Star Line for the erection of a further 100 cottages.

FARMS ON THE INSTALMENT SYSTEM.

The following facilities are offered to settlers by the Canadian Pacific Railway Company :—

(1) Approved settlers who have had previous farming experience may select their own farms in Western Canada from the Company's lands open for sale, the area to be not less than 160 acres.

(2) Such farms to be sold at the regular list prices at the time the contract is closed, on the thirty-four-payment plan.

Under this plan all the settler pays down is 7 per cent. of the purchase price—then he will have one year's free use of the land without any interest chargeable whatever, after which the balance of principal will be amortized on an easy payment plan of thirty-four equal annual payments. The second payment therefore falls due two years after the purchase of the land, and is calculated on the basis of 7 per cent. of the balance of the cost of the land. At the end of thirty-five years the settler will get a clear title to the land—unless, of course, he wishes to pay sooner, which is his privilege. The whole policy is planned to assist the experienced man with small capital, and gives him a chance to get well started before he is called upon to make any of his heavier payments.

The Canadian Pacific Railway Company are also in a position to arrange employment in the spring to approved applicants who wish to engage in farm work in the Western Provinces and can pay their own fare.

The Land Settlement Branch of the Canadian National Railways secures for settlers improved and partly improved farms in established districts close to its lines, and advises in the purchase of livestock and machinery, so that the new settler can start with a minimum amount of capital.

Land can also be secured from the Company itself, if desired, on 15 years' extended purchase at 6 per cent. interest, as follows :—On taking over the farm, small cash deposit and payment of taxes only ; (taxes vary between 25 cents and 50 cents per acre per annum) ; first year, payment of taxes and

half interest ; second year taxes and interest ; third year \$1 per acre, interest and taxes ; fourth year payment of first instalment, interest and taxes.

The Canadian National Railways is also in a position to secure employment for single men and married couples who wish to engage in farm work, for families taking up farms, and for women going to domestic work.

CORRESPONDENCE COURSE IN CANADIAN FARMING.

The Canadian National Railways has instituted a correspondence course of instruction in Canadian Farming, conducted by a Canadian farmer, from its London offices, with the object of preparing settlers for Canadian conditions and the methods of working employed on Canadian farms. A nominal charge of 10s. is made for this course, which is refunded to those who afterwards proceed to Canada.

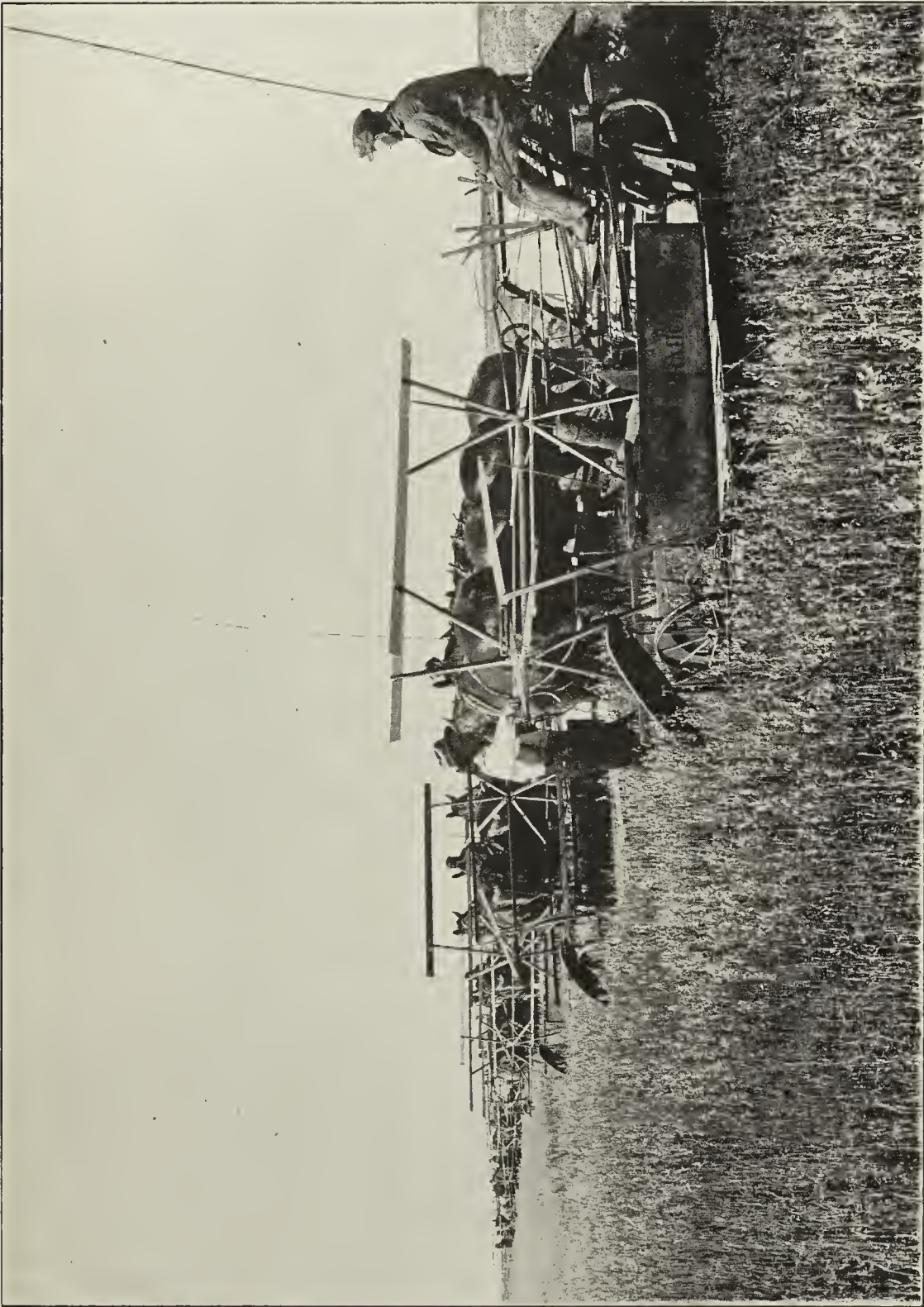
AGRICULTURAL EDUCATION IN CANADA.

Among the facilities offered for agricultural education in Canada are the following :

THE MACDONALD AGRICULTURAL COLLEGE, MONTREAL (Incorporated with McGill University).—Boys from Public or Secondary Schools, of 17 years of age and upwards, are given a two-years' course of training in agriculture at Macdonald College. Tuition is free of cost, and the total expenses of board and lodging, laboratory fees, subscriptions, games, etc., are approximately £40 per annum. From 1st April to 31st October the students do practical work on farms selected by the College authorities, receiving a small wage, with board and lodging. A Superintendent appointed by the College is in touch with the boys during this period. From 1st November to 31st March theoretical and practical training is given in the College, to which a farm of 500 acres is attached. During the second year facilities for specialising are provided. Students travel at reduced passage rates.

ONTARIO AGRICULTURAL COLLEGE, GUELPH.

Fifty places annually have been made available for British boys, over 17 years of age, at the Ontario Agricultural College, Guelph (affiliated with Toronto University).



Photo, Canadian Government.

HARVESTING SCENE IN WESTERN CANADA
General view of the binders

The purpose of this arrangement is to provide, at a reasonable cost, training in scientific and practical agriculture for suitable well-educated boys, who desire to engage in farming in Canada, and whose parents or guardians are in a position to defray the expenses of a college course. The courses offered are for either two years or four years.

British students accepted under this special arrangement are required to attend College during the full College year—from September till April. From April till September they will be employed on farms in Ontario, where they will receive wages as well as board and lodging, and will thus be self-supporting while away from the College. Such employment will be found for each British student.

For first and second year students, the cost will be approximately 50 guineas each school year, living in. This sum includes the expenses of tuition, society and contingency fees, laboratory fee, books, and board from September till April.

SASKATCHEWAN.—Youths who have not reached the age of 19 years prior to sailing can obtain training at a Provincial training farm in Saskatchewan. The Provincial Government arranges for the settlement and aftercare of the youths accepted under this scheme.

MANITOBA.—Young men who have not reached their 19th birthday prior to sailing can obtain training at a Provincial training farm in Manitoba. The Provincial Government has made arrangements for the selection, transportation, reception, training, care and placing of all boys sent to Manitoba under this scheme and for continuing aftercare for a period of three years.

While the foregoing arrangements adequately meet the requirements of young men desiring to study agriculture scientifically, the following is intended for boys without sufficient capital for a college education but who nevertheless desire to become practical farmers in Canada.

Approved boys, over 15 and under 19 years of age, are granted free passages from the port of embarkation in Great Britain to the Ontario Government's Reception Centre, Vimy Ridge Farm (330 acres), near Guelph, Ontario. All boys are required to pay their railway fare from their homes to the port of embarkation and must have

sufficient money for incidental expenses on landing in Canada.

Boys are received at Vimy Ridge Farm and from there are placed in situations with selected farmers, from whom they receive current wages for boys (about £2 a month to start), plus board and lodging, washing and mending. The farmer undertakes to pay the boy the sum of five dollars each month, and to remit the balance to the Colonization Branch, Ontario Government, Parliament Buildings, Toronto, to be placed to the boy's credit.

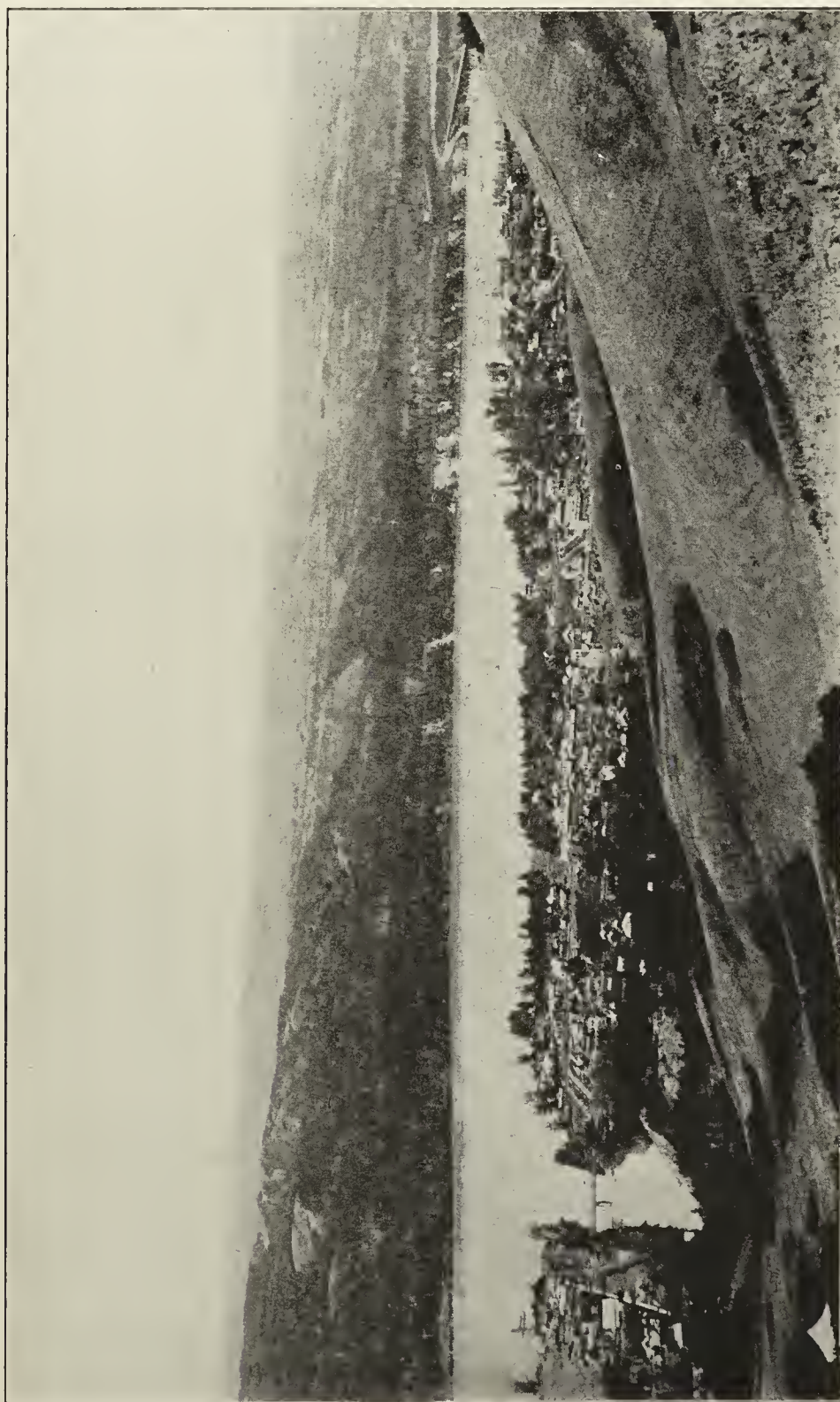
The Government of Ontario furnishes the aftercare, advice, protection and supervision necessary for the boy's welfare, for a period of at least three years after his arrival in Canada.

Similar arrangements have been made by the Governments of all the Canadian Provinces.

New Zealand

The total area of the Dominion, exclusive of dependencies, is approximately 66,293,232 acres, of which only just over 3,000,000 acres of Crown lands remain for future settlement. There are no free grants of land in New Zealand.

The distinguishing features of the leasehold system involve the principle of State ownership of the soil, with a tenant right to recurrent terms of lease by the occupier, and in some cases the right to acquire the freehold of their holdings. Between 1892 and 1907 a very large proportion of the Crown lands were disposed of on lease for 999 years. The rentals were based on the assessed value of the land at the time of disposal, without increase or recurring valuations, and gave a fixity of tenure practically equal to freehold, and which, like freehold, necessarily carried with it the power of sale, sublease, mortgage, or disposition by will. At the same time, the improvements made in the soil by cultivation, etc., were secured to the tenant should he from any cause be obliged to forfeit or surrender his lease. This tenure was amended by an Act in 1907, which substituted a lease for sixty-six years (in the case of *ordinary* Crown lands) and thirty-three years (in the case of *settlement* lands), with a perpetual right of renewal for further successive terms.



A TOWN IN THE PEACE RIVER COUNTRY
British Columbia, Canada

Photo, Canadian Pacific Rly.

When it is taken into consideration that, with few exceptions, the Crown lands are, in their prairie condition, incapable of immediate profitable use, the advantage to the settler of freeing his capital to develop the capabilities of the soil, rather than having to expend it in the immediate purchase of a freehold, is very apparent.

The values placed on the Crown lands are, as a rule, low, for the State does not so much seek to raise a revenue directly therefrom as to encourage the occupation of the lands by the people; this occupation secures an indirect increased revenue, besides the other advantages resulting from a numerous rural population.

Again, underlying the whole of the New Zealand land system is a further application of the principle of "the land for the people," viz., the restriction in area which any person may hold. This subject has been forced upon the attention of the Legislature by defects in former systems, under which one individual with means at his command could appropriate large areas, to the exclusion of his less wealthy fellow-settler. Under-existing conditions, where the price at which land is offered is definitely fixed, and where choice of selection is by ballot, every would-be settler has the same chance, and may hold under the Crown an equal area of land, except that by the Land Laws Amendment Act, 1912, preference is given to landless, married, or previously unsuccessful applicants. The quantity that a selector may hold is so fixed as to encourage the class of moderate farmers, for, up to the statutory limit, the amount he may select is left almost entirely to himself. The Act defines the amount of land any one may hold as 666 $\frac{2}{3}$ acres of first-class land, 2,000 acres of second-class land, or 5,000 acres of third-class land. These limits apply to lands which are thrown open for optional selection, but in some cases, where the quality of the land is very good and the selectors many, the limit may be made smaller.

LAND TENURES.

In addition to the many advantages offered by the *renewable-lease* tenure, the Land Act provides others, to meet the wants of different classes. The general rule is that ordinary Crown land thrown open for *optional selection* is offered to the public

under three different tenures, the choice of which is left to the would-be settler.

The three tenures are :—

(1) Cash, in which one-fifth of the purchase money is paid down at once, and the remainder within thirty days. The final title is not given until certain improvements have been made on the land.

(2) Lease with a purchasing clause, at a 5 per cent. rental on the value of the land; the lease being for twenty-five years, with the right to purchase at the original upset price at any time after the first ten years and within twenty-five years, or to convert into a renewable lease.

(3) Renewable lease, at a rental of 4 per cent. on capital value, the lease being for sixty-six years with perpetual right of renewals.

"Settlement" lands are opened only on renewable lease, the term being for thirty-three years instead of sixty-six years, and the rental 4 $\frac{1}{2}$ per cent. on capital value.

The Land Act provides for a special class of settlement called *small-farm associations*, which found favour with the public to a very considerable extent during the first three years after the Act came into force, but is now superseded to a large extent by the improved-farm-settlement system. The small-farm association system provides that, where not less than twelve individuals have associated themselves together for mutual help, such an association can, with the approval of the Minister of Lands, select a block of land for subdivision and settlement, but not more than 250,000 acres may be set aside in any one year. The extreme limit that one person may hold is fixed at 500 acres. Settlements of this class were formerly held on lease in perpetuity, in a similar way to land under the same tenure when thrown open for optional selection, but this is now superseded by the renewable-lease tenure. The conditions of residence and improvement are the same. The system offers many advantages to the settler, so long as the blocks of land are judiciously chosen, having regard to the quality of land, access, markets, and the probability of employment being obtained in the neighbourhood. In the eagerness to obtain lands on such easy terms, these points have, in the past, not received sufficient attention by some of the associations, and, in consequence, they are not all



A FARM IN NEW ZEALAND

Photo, New Zealand Government



WOOL WAGGONS CROSSING A RIVER IN NORTH ISLAND, NEW ZEALAND Photo, New Zealand Government

successful. At present only a very small proportion of the remaining Crown land is suitable for selection in this manner.

VILLAGE SETTLEMENT.

The *village-settlement* system of New Zealand has excited much inquiry. This system provides for the setting apart and offering for optional selection of allotments of one acre in area or under, and for the opening under the renewable-lease tenure of small farms between 1 and 100 acres in area. These settlements were designed to enable labourers to obtain homes for themselves and their families in the immediate vicinity of their work, and gave bushmen, workers on the road and railways, etc., an excellent chance of securing a holding upon which they could live, and which they could improve in their spare time. There has not been any great extension of this system in recent years.

IMPROVED FARMS.

The *improved-farm-settlement* system was first begun in order to find work for the unemployed. Considerable areas of forest-

clad Crown lands were set aside, and small contracts for the clearing, burning, and sowing of these were let to the men to whom it was intended to allot them. In most cases the farms are selected or balloted for in their primitive state, and the settler is, for a time, paid for the improvements he makes, or, in other words, the cost of converting forest lands into grass lands is advanced from time to time by the Government. In other cases a piece of forest land is taken in hand, and men are employed at fixed rates in felling, burning, and grassing. When so much grass is laid down as will give a good start, the land is opened for selection in sections of 50 to 200 acres and balloted for among the applicants. The farms are let on lease with a purchasing clause or on renewable lease at a rental sufficient to cover the cost of clearing, together with a fair rental of the land. The size of holdings averages about 120 acres.

ADMINISTRATION.

The Crown lands are administered, under the authority of the Land Act, 1908, by the Minister of Lands, at Wellington, his

executive officer being the Under-Secretary of Lands, who is the permanent head of the Department of Lands and Survey. For convenience, New Zealand is divided into twelve land districts, each being under the local direction of a Commissioner of Crown Lands and a Land Board. The Commissioner's office is known as the principal land office, and in some of the larger districts there are one or more local land offices. It is with these land offices the selector has to transact all business, from the first consultation of the maps to the final receipt of the Crown title.

A Land Board consists of five members, of whom the Commissioner of Crown Lands for the district is *ex officio* chairman. Three of the members are nominated by the Governor, the remaining one being elected by the Crown tenants of the district.

The names of the principal land districts and of the towns where each principal office is situated are, beginning with the most northerly and taking them geographically, as follows :—

Land District.	Town where Principal Land Office is situated.	Land District.	Town where Principal Land Office is situated.
Auckland	Auckland	Marlborough	Blenheim
Taranaki	New Plymouth	Westland	Hokitika
Hawke's Bay	Napier	Canterbury	Christchurch
Wellington	Wellington	Otago	Dunedin
Nelson	Nelson	Southland	Invercargill

HEAD OFFICE - - Government Buildings, Wellington.

CLASSIFICATION OF LANDS.

Crown lands are divided into three classes :—

(1) Town and village lands, the upset prices of which are, respectively, not less than £20 and £3 per acre ; such lands are sold by auction, or leased for ten or thirty-three years at a rental of 5 per cent. on the value of the land.

(2) Suburban lands, the upset price of which may not be less than £2 an acre ; these lands are sold by auction, or leased as aforesaid.

(3) Rural lands, which may be disposed of at not less than £1 per acre for first-class,



Photo, New Zealand Government

HARVESTING LUCERNE, MARLBOROUGH, NEW ZEALAND

10s. an acre for second-class, and 2s. 6d. an acre for third-class lands; such lands may be sold or leased by auction, or sold or leased on application.

No rural section may be larger than 666 acres in extent if first-class land, 2,000 acres if second-class land, or 5,000 acres if third-class land, whether offered by auction or granted on application.

APPLICANTS.

Every applicant must be of the age of 17 years or upwards, and must apply for Crown land solely for his own use and benefit, and not directly or indirectly for the use or benefit of any other person, whilst, including the land he applies for, he is not to be the owner, holder, or occupier under any tenure of more than one year's duration, either severally or jointly or in common with any other person or persons, of any land anywhere in New Zealand exceeding in the whole 5,000 acres.

MODE OF ACQUIRING CROWN LANDS.

Crown lands may be acquired as follows :—

(1) By auction, after survey, in which case one-fifth of the price is paid down at the time of sale, the balance within thirty days.

(2) By application, after the lands have been notified as open for selection, in which case the applicant fills up a form (to be obtained at any of the Land Offices) and makes the declaration and undertaking required by the particular system he wishes to select under.

(3) Under special conditions, the Land Board, with the Minister's consent, may sell small areas of Crown lands, under 5 acres in extent to religious bodies, or as sites for dairy-factories, cheese-factories, creameries, or fruit-preserving works, without the land having to go to public competition, but no land can be so sold at a less price than £1 per acre.

All applications, whether for surveyed or unsurveyed lands, are deemed to be simultaneous if made on the same day, and, if there be more than one applicant for the same land, the right of selection is determined by ballot.

Lands thrown open for application may be either surveyed or unsurveyed, and those not selected the first day remain open.

THE OPTIONAL SYSTEM OF SELECTION.

Lands for selection are notified as open for application on and after a stated day, and, *at the option of the applicant*, may be obtained on any of the three following tenures: (a) Freehold; (b) occupation with the right of purchase; (c) renewable lease.

FREEHOLD.—If the land is surveyed, one-fifth of the price is to be paid down when the application is granted, and the balance within thirty days; or, if the land is not completely surveyed, the survey fee is deposited when the application is agreed to, the balance must be paid within thirty days of notice that the survey is completed.

A certificate of occupation will be issued to the purchaser on final payment, and this will be exchanged for a Crown title as soon as the Board is satisfied that the following improvements have been completed, viz., on first-class lands, up to £1 per acre; on second-class lands, 10s. per acre; and on third-class lands, 5s. per acre. These improvements must be effected within seven years from the date of purchase.

OCCUPATION WITH RIGHT OF PURCHASE.—Lands selected on this tenure are held under a licence for twenty-five years. At any time subsequent to the first ten years, and before the expiration of the licence, after having resided and made the improvements herein-after described, the licensee can, on payment of the upset price of the land, acquire the freehold. If the land be not purchased, the licence may be exchanged for a renewable lease.

The rent is 5 per cent. on the cash price of the land; if surveyed, a half-year's rent has to be paid at the time the application is approved, which represents the half-year's rent due in advance on the 1st day of January or July following the selection. If the land is unsurveyed, the cost of survey has to be paid, and is credited to the selector as so much rent paid in advance.

By the Land Act, the Commissioner of Crown Lands and Receiver of Land Revenue may, in their discretion, grant to any Crown tenant who is not in arrears with his rent a rebate not exceeding one-tenth of the instalment of rent paid within one month after the day appointed for its payment. This provision reduces the amount of rent payable by a licensee under this tenure to $4\frac{1}{2}$ per cent. per annum, if paid promptly.

The Minister may postpone payment of rent by Crown tenants when they are unable to pay the same by reason of any natural disaster or other sufficient cause.

Residence on and improvement of the land are compulsory, as hereinafter described.

RENEWABLE LEASE.—Lands selected on this tenure are leased for sixty-six years, with a perpetual right of renewal for further terms of sixty-six years, subject to revaluation at the end of each term, and to the conditions of residence and improvements described below. The rental is 4 per cent. on the cash price of the land, and applications are dealt with in the same way as under the previous tenure (*b*), but there is at no time a right to purchase the freehold.

Two or more persons may make a joint application to hold as tenants in common under either of the two last-named tenures.

The same concession as to rebate of rent for prompt payment applies as in the previous tenure, viz., a rebate up to 10 per

cent., as also does the power to postpone payment of rent in certain cases.

A lessee may pay up to 90 per cent. of the capital value of his land at any time, when the rent shall be proportionately reduced. When he has paid up to 33 per cent. he is freed from all covenants and conditions of his lease, except the covenant to pay rent and to reside.

If in any land district the Land Board deems any Crown land (from its inferior soil or inaccessibility) not likely to be immediately productive, they may, with the consent of the Minister, open it on terms that will allow the tenants to occupy the land rent-free for a term not exceeding the first ten years of the sixty-six years' lease.

RESIDENCE AND IMPROVEMENTS.

Under the two last-mentioned tenures, the conditions as to residence and improvements are :—



A FRUIT FARM AT PAARL, CAPE PROVINCE *Photo, South African Government*
Union of South Africa

RESIDENCE.—(1) Must commence on bush or swamp lands within four years, and in open or partly open land within one year, from the date of selection.

(2) Must be continuous for six years on bush or swamp land, and for seven years on open or partly open land, on lands occupied with a right of purchase.

(3) Must be continuous for a term of ten years on renewable-lease lands.

The Board has power to dispense with residence in certain cases, such as where the selector is residing on adjacent lands, or is a youth or unmarried woman living with parents, and in a few other cases.

Residence implies the erection of a habitable house to be approved of by the Board.

The Governor has power to set apart certain areas of land which may be selected by persons who for a certain number of years may be represented by registered substitutes, such as a near relation who shall reside upon it, in their place, and make the requisite improvement, subject to special regulation which the Governor shall lay down.

IMPROVEMENTS which must be made are as follows :—

The holdings must be improved to an amount equal to 10 per cent. of the value of the land within one year from the date of the licence or lease ; within two years must be improved to the amount of another 10 per cent. ; within six years must be improved to the value of another 10 per cent., making 30 per cent. in all within the six years. In addition to the above, the land must be further improved to the value of £1 for every acre of first-class lands, 10s. for every acre of second-class lands, and 2s. 6d. for every acre of third-class lands.

Improvements may consist of reclamation from swamps, clearing of bush, planting with trees or hedges, cultivation of gardens, fencing, draining, making roads, wells, water-tanks, water-races, sheep-dips, embankments or protective works, or in any way improving the character or fertility of the soil ; or the erection of any building, etc. ; and *cultivation* includes the clearing of land for cropping, or clearing and ploughing for laying down with artificial grasses, etc.

In addition to these arrangements provision is made for the acquisition by purchase

or lease of blocks of land by associations, small village allotments, homesteads (100 acres), small grazing-runs (not to exceed 20,000 acres), pastoral runs (5,000 acres), kauri-gum lands, flax-lands, and bush and swamp lands (exemption for a period from rent and rates).

CREDIT SYSTEM.

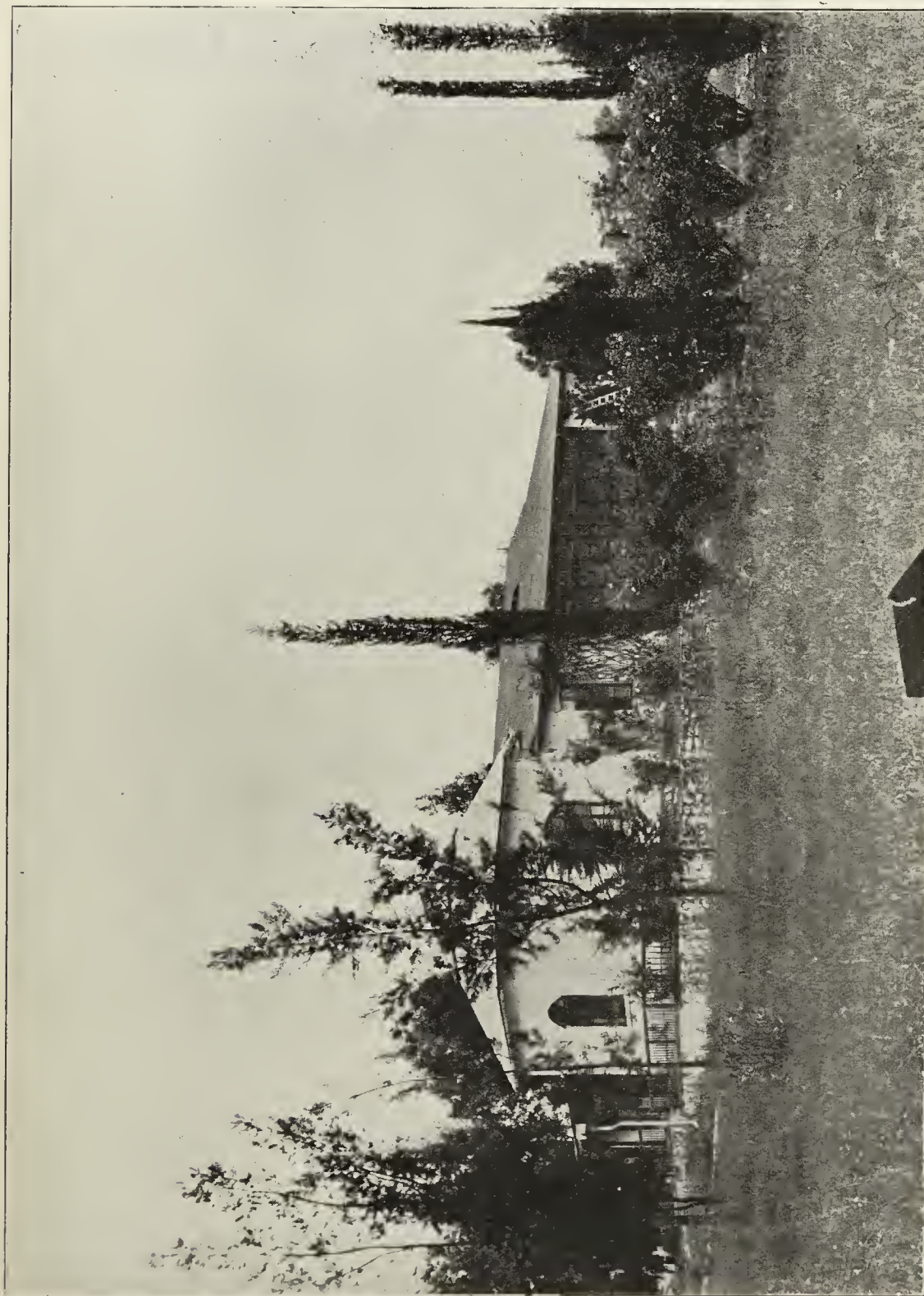
The State Advances office may grant loans on favourable terms for farming or building purposes. Very considerable sums are advanced annually in this way. The granting of these loans is made at the discretion of the State Advances Board, and loans can only be made within the limits of the amount available for that purpose. Such advances are usually made up to about three-fifths of the value of the security, and are repaid by half-yearly instalments at the rate of 7 per cent. per annum, covering both interest and repayment of capital. A rebate of $\frac{1}{2}$ per cent. off the interest is allowed for prompt payments ; in this way loans can be repaid in 73 half-yearly instalments.

Under the Rural Intermediate Credit Act, 1927, funds are available for farmers for the erection of buildings and general improvements on rural land and for the purchase of implements, stock, etc. The rate of interest is fixed from time to time by the Rural Intermediate Credit Board. Loans are granted for a period up to five years and are repayable by instalments arranged between the Board and the borrower.

Southern Rhodesia

The total area of the unalienated land in Rhodesia, excluding native reserves, in districts free from tsetse fly, is upwards of 100,000,000 acres, and of this area upwards of 43,000,000 acres are situated in Southern Rhodesia.

In certain districts such as Bulawayo, Salisbury, Mazoe, there is no longer any available Crown land ; but in most other districts there are still extensive areas of such land suitable for settlement situated at distances varying up to thirty-five miles from the existing railways. These lands embrace all the recognised types of soil from the light grey sands associated with the granite " sand veld " to the light and heavy



A FARM IN SOUTH-WEST AFRICA

Photo, South African Government

dark red loams derived from the diorites, ironstone, and basement schist formations

In the past when maize was practically the only saleable crop it was customary to look askance at the lighter granite and sandy loam soils, owing to their unsuitability for the production of this crop in bulk.

It is now fully recognised that the granite sand veld has much to recommend it. It includes a great deal of the healthiest, highest and most picturesque part of the country. It is usually well watered and is "early veld"; that is to say, the grass becomes green early in the spring, thus reducing the cost of supplementary winter feed for cattle. It includes most of the best tobacco soils and a good deal that is considered suitable for cotton. It is easily worked and is very suitable indeed for a system of mixed farming on modern lines, which includes dairying, poultry, pigs, sheep, tobacco, citrus, potatoes, wheat and other winter crops. The sandstone formation prevalent in Western Matabililand gives rise to a good quality sandy loam soil which is being increasingly favoured for the growing of tobacco and cotton.

The price of Crown land farms available for settlement varies from 5/- to 15/- per acre, according to their situation and quality, while purely pastoral land in the more remote districts may be acquired at somewhat lower prices.

The terms on which Crown land may be acquired are as follows:—

The purchase price, which includes cost of survey, plus interest at the rate of 5 per cent. per annum, is payable over a term of 19½ years in 40 half-yearly instalments, the first of which becomes due on the date of acceptance. The settler may at any time pay an amount (being not less than the amount of a half-yearly instalment) in reduction of his liability, when the amount of the subsequent half-yearly payments will be adjusted accordingly.

On completion of purchase the purchaser shall be entitled, provided he shall have occupied the land in terms of the Agreement of Purchase for a period of not less than ten years, to obtain and receive a grant of the said land.

The half-yearly payment due in respect of every hundred pounds of the purchase price

is approximately £3 17s. 4d. Agreements to purchase contain the following provisions:—

"The purchaser shall actually and continuously occupy the said land during the currency of this Agreement either personally or by a European substitute to be approved of by the Minister of Agriculture and Lands in writing, and shall carry out *bona fide* farming operations as follows:—

- (a) By the erection of permanent substantial farm buildings or other permanent improvements to the value of not less than £250 per 1,500 morgen.*
- (b) By the cultivation each year of an area of not less than four per centum of the extent of the said land.
- (c) By the maintenance of not less than four head of large stock or twenty head of small stock for every hundred morgen of the said land.

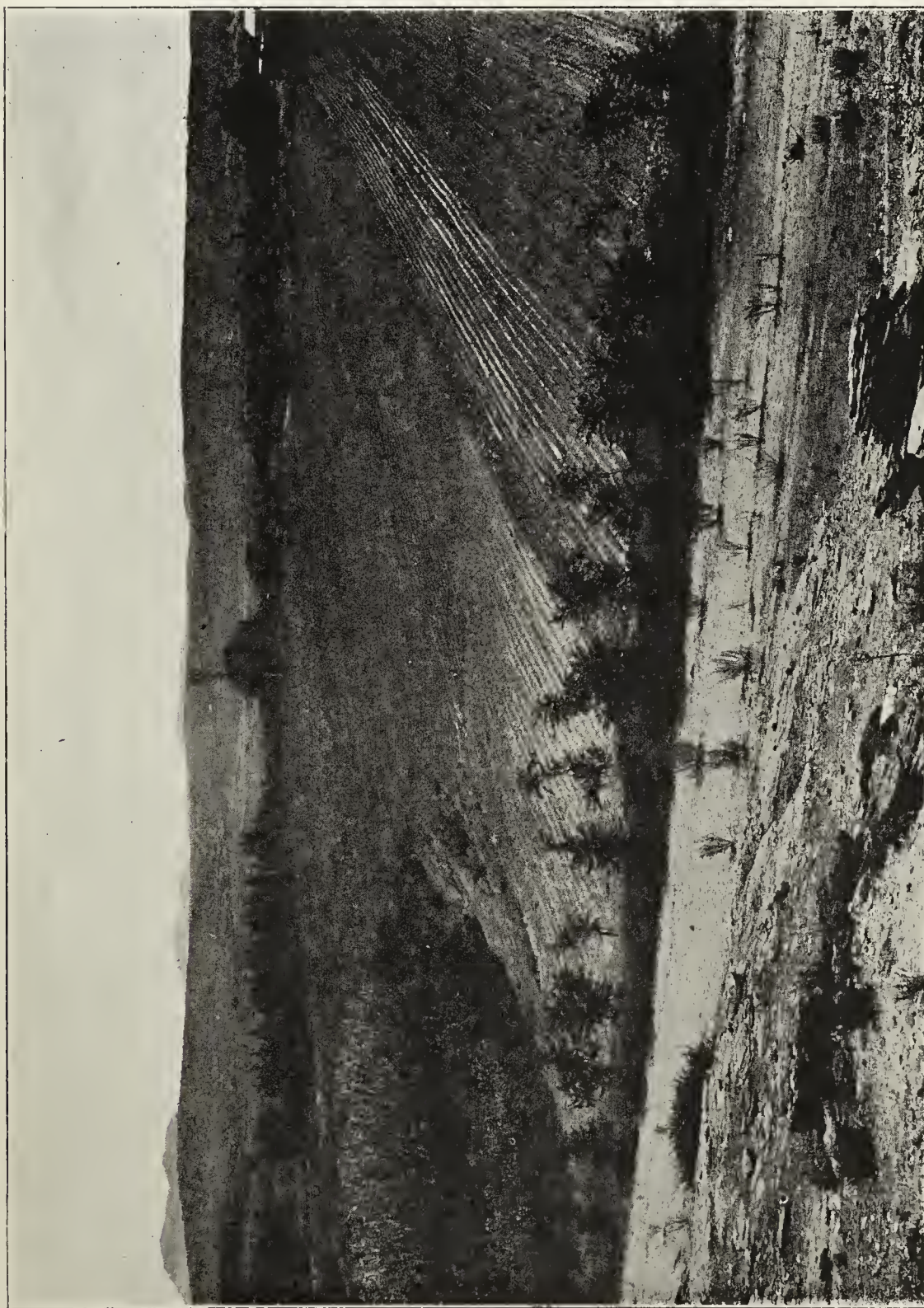
Provided that during the first year of this Agreement the Purchaser need only carry out the cultivation of not less than thirty (30) acres, and during the second year not less than sixty (60) acres; provided further that in the event of the said land exceeding fifteen hundred (1,500) morgen in extent the Purchaser may maintain an additional, proportional, number of stock in lieu of cultivation at the rate of four per centum of such additional area over and above the fifteen hundred (1,500) morgen."

The Government provides as far as possible free road transport to enable settlers to inspect Crown land in those Districts where such land is offered for settlement.

A great deal of the land in all parts of the Colony is held by private individuals and companies, but is usually obtainable at a reasonable price upon extended terms of payment. For purely pastoral or ranching land the price is from 5/- to 7/6 per acre, while for undeveloped land suitable for mixed farming, tobacco growing, etc., the price ranges from 7/6 to 21/- per acre, according to its situation and quality.

For the best quality rich red and black soils, especially that situated in developed localities having a regular and sufficient rainfall and convenient to the railways, the price may be put at from £2 to £3 10s. per acre for uncleared land. This class of land

* A morgen is rather more than two acres.



A LARGE FARM AT NEUDAAM, SOUTH-WEST AFRICA

Photo, South African Railways

is frequently firmly held and tends to appreciate in value.

Certain of the large land-owning companies have recently offered considerable areas of land for settlement, and the Government has agreed to accept such of the land as may be found suitable, upon certain agreed terms. In cases where a settler desires to acquire any such land, it can be transferred to the Government, who will alienate same to the settler at the price asked by the owner but upon terms similar to those contained in the "Agreement of Purchase."

Union of South Africa

The area available for settlement in the four Provinces of the Union either for cultivation, pasture land, or town and village sites, is approximately 40,000,000 acres.

The passing of the Land Settlement Acts of 1912-25 brought about uniformity of practice in the various Provinces as regards the acquirement and disposal of land suitable for settlement purposes. Briefly, the mode of procedure is as follows: Crown lands and alienated lands that have since been re-acquired by the Government, suitable for farming purposes, are cut up into holdings of useful size (which varies, of course, with the district, proximity to a railway line, climatic and soil conditions, etc.), and are advertised for allotment to European settlers. All applications received are considered and dealt with on their merits by Land Boards in each Province specially appointed for the purpose, and these Boards submit recommendations to the Minister of Lands as to which applicant should be allotted the farm applied for. In the event of there being two or more candidates for the same holding, with equal qualifications, recourse is had to the ballot. Allotments are made by the Minister of Lands only to applicants possessing the prescribed qualifications, *e.g.*, they must be 18 years of age at least; possess qualifications sufficient for utilising the land, the subject of the application; intend in good faith to occupy personally and develop and work beneficially the said holding; be of good character; possess capital sufficient to develop and work the holding beneficially, or, in any special cases, possess such amount of capital as, after report by the Board, the Minister may deem fair and reasonable;

declare that they will develop and work the holding exclusively for their own benefit and the members of their families, if any. As far as possible preference is given to applicants who are not already owners of land, and have had farming experience.

Farms are allotted on lease for a period of five years, the rental being calculated as follows: For the first year, nil; for the second and third years at the rate of 2 per cent. per annum on the purchase price; and for the fourth and fifth years at the rate of $3\frac{1}{2}$ per cent. per annum on the purchase price. The allottee has the option of acquiring the land at any time during the currency of the lease, or at the expiry thereof, on terms of conditional purchase lease extending over a period of twenty years.

Lists of farms available, with full particulars as to rental, purchase price, and instalments in the event of purchase, are published from time to time in the *Union Gazette*.

The Land Settlement Acts, also empower the Minister of Lands to acquire private land on behalf of persons possessing the qualifications referred to above, who are prepared to contribute forthwith not less than one-fifth of the actual purchase price, and to comply with all the provisions of settlement. The Government pays the balance of the cost of the land and allots the holding to the applicant on conditional purchase lease for twenty years, during which period the balance of the capital plus any incidental expenditure incurred by the Minister in connection with the purchase, transfer, and allotment of the land, with interest at 4 per cent. per annum, is repaid to the Government in half-yearly instalments. In these cases there is no preliminary lease period of five years as is given in the case of ordinary Crown lands, and, therefore, the first half-yearly instalments of capital and interest (the instalments are payable in advance) becomes due and payable on the date the lease commences, which is the date transfer of the land is made to the Government.

Any person deciding to apply to the Government specially to purchase a holding for him should make *written application to the Ministry of Lands*, giving full information regarding the name, situation, extent and price of the land, and should state that in the event of the application being granted

he is prepared to contribute forthwith not less than one-fifth of the purchase price of the land, and to comply with the provisions of the Act. At the same time he should forward an option of purchase over the land, granted by the registered owner thereof, for a period of, at least, six weeks, but preferably for a longer period. The option, which should be in favour of the Minister, should correctly describe the land, state the lowest price at which it can be bought, and carry

land is situated. No assurance is, of course, given that any proposal submitted will be entertained by the Minister, nor does the Government refund any expenditure incurred by the applicant in connection with the application. Each proposal is dealt with entirely on its merits and decided accordingly. It might, however, be mentioned that in cases where an agreement of purchase has already been entered into by the applicant, such will not be considered, nor will applica-



A COUNTRY TOWN IN SOUTH-WEST AFRICA *Photo, South African Government*

full rights. Applicants should also furnish detailed particulars of their capital (cash, stock, farming implements, etc.) on the prescribed form, which may be obtained from the magistrates of the various districts or direct from the Department of Lands, Pretoria.

All applications should be sent to the Secretary for Lands, Pretoria, to be submitted for the consideration of the Land Board appointed for the area in which the

tions from farmers for the Minister to take over their farms from bondholders and sell such farms back again to them in terms of the Act, be entertained. The purpose of the Act is to settle persons on the land who do not already own land, but who possess a certain amount of capital and are able to purchase a farm with the assistance of the Government and personally occupy it in accordance with the provisions of the Act.

Section 17 of the Act also empowers the Minister by notice in the *Gazette* and in one or more oversea newspapers, to offer holdings for allotment to applicants from oversea. Applications for allotment of holdings under this section shall be lodged with the High Commissioner for the Union, who is empowered in respect of all holdings to be allotted under this section, to exercise the functions conferred upon the Land Boards.

In practice it would appear to be necessary for applicants for Crown Lands on easy terms to be resident in South Africa at the time of making application. Settlers are warned, by the British Overseas Settlement Department, not to buy or rent land in South Africa unless it has been personally inspected by themselves or by someone in whom they have complete confidence.

By an amendment to the Act, passed in 1925, financial assistance, through the Land Bank, can be obtained by settlers unable to meet their obligations through drought or unforeseen causes.

South West Africa

In South-West Africa it was not found practicable to continue the German Land Settlement Scheme, and for that reason the Act governing land settlement in the Union of South Africa, with certain modifications, has been applied.

The total area of South-West Africa is approximately 83,000,000 hectares, of which 13,353,000 hectares were alienated, or in process of alienation, during the German régime, and over 4,000,000 hectares have been so treated since the country was taken over by the Union Government.

The tenure granted is a five years' lease, which carries an option of purchase at a price fixed when the lease is entered into. No rent is payable during the first year; 2 per cent. per annum, calculated on the purchase price, is payable during the second and third years; and 3½ per cent. per annum during the fourth and fifth years. In terms of Proclamation No. 197 of 1921 (Union), the Administrator may authorise the remission of rentals accruing during the second and third years of the lease period, provided the lessee has during the first and second years, respectively, effected satisfactory permanent improvements on the holding, and

has otherwise complied with the conditions of lease. Such improvements will not, however, include improvements which have been effected out of moneys advanced by the Government.

The lease, at the expiration of the five years, may be renewed, with the approval of the Administrator, for a further period of five years, in which event rent becomes payable at the rate of 4 per cent. per annum, calculated on the purchase price.

The purchase price of a holding may be paid at any time, provided the provisions of the law and all the conditions of the lease have been complied with, but notwithstanding such payment, the settler is not entitled to obtain transfer of his holding into his name until a period of ten years from the commencement of the lease has expired. This provision can only be departed from in very special circumstances.

ASSISTANCE TO SETTLERS.

Settlers holding leases from the Government may apply for assistance to enable them to develop their holdings. The extent of the assistance that may be granted is as follows:—

- (a) The Administrator may, on the recommendation of the Land Board, advance not exceeding £750 to a settler for the purpose of purchasing stock, implements, and equipment necessary for the developing of his holding. Advances under this head are payable within a period of five years, interest being charged thereon in the meantime at the rate of 4½ per cent. per annum. If expended on draught animals, implements, or equipment, advances become repayable in seven half-yearly instalments, the first of these being payable at the end of eighteen months from the date of the advance. Stock, implements, etc., acquired, or to be acquired, must be approved by a representative of the Government, and only on such approval can payment be made by the Department. Further, only such specified items appearing in a settler's application form, as the Land Board may approve, may be acquired. No advances in cash can be made.



Photo by kind permission of the West India Committee
AERIAL VIEW OF IRRIGATED COAST LAND IN BRITISH GUIANA

- (b) The Administrator may, on the recommendation of the Land Board, make advances to enable a settler to make permanent improvements on his holding, *e.g.*, house, fencing, bore-hole, dam, well, etc., and add the cost thereof to the valuation of the holding. The rents, or instalments of purchase price, as the case may be, payable on the holding, are increased accordingly. The maximum amount which is advanced for house-building is £400.
- (c) The Land and Agricultural Bank, with the approval of the Department, grants loans to settlers for development purposes such as fencing, dipping tanks, etc.

The foregoing has been amended to the effect that subject to the conditions governing the remission of rent due in respect of the second and third years' lease period:—

- (a) In cases of advances made for the purchase of large stock, the interest due on such advances, together with the capital sum advanced, may be repaid at the expiration of five years from the date on which the advance was made.
- (b) In cases of advances made for the purchase of small breeding stock, interest on such advances may be paid in arrear, together with the first instalment of the advance, *i.e.*, eighteen months from the date on which the advance was made.

Notwithstanding the ample assistance granted to settlers by the Government, experience has shown that it is quite impossible for a settler to make a success of farming in this country unless he has some capital of his own.

Crown Colonies

It is only possible to mention here the conditions of land purchase and tenure in a few of the tropical Colonies of the Empire. It must be remembered that in most of these Colonies coloured labour is almost entirely substituted for white, and both capital and local experience are necessary before an efficient start can be made by even a trained European agriculturist or pastoralist. The experienced estate manager or planter has,

however, a wonderful field open to him in the following Crown Colonies.

KENYA.

In Kenya Colony it was decided by the Government, as far back as 1912-13, that no more free grants of land should be made, but that Crown lands should be leased for periods of 99 years. At first a licence is issued, under which the annual rent is about 20 cents an acre (100 cents=a florin, or two shillings). Then a lease is granted after occupation has been effected. The period of 99 years is divided into three equal divisions of $33\frac{1}{3}$ years each. The rent for the first period is 20 cents per acre per annum. For the second period it is 1 per cent. on the value of the land, without improvements, assessed at the date of the expiry of the first period. Then for the last $33\frac{1}{3}$ years of the lease it is 2 per cent on the value calculated in the same manner.

The development work required on a 300 acre farm includes improvements to the value of 20 shillings per acre within the first three years of the lease, with a minimum of £30. Then additional improvements to the value of ten shillings an acre, with a minimum of £15, within the first five years of the lease. On farms exceeding 300 acres the value of the improvements to be effected within the three years is £300 and, in addition, 4s. per acre for every acre over 300. Within five years these larger farms require additional improvements to the value of £150 and 2s. per acre for each acre in excess of 300.

MALAY STATES.

Land in the Malay States suitable for tropical plantations (such as coco-nuts and rubber) can be acquired on very advantageous terms. On the east coast of the Peninsula, which is less developed than the west coast, the Government of the State of Pahang grants land in blocks of 2,000 acres on specially low terms to approved applicants. Titles in perpetuity are granted, and the initial quit rent is 10 cents (2.8 pence) per acre per annum, rising in ten years to the maximum rent per acre of one dollar (2s. 4d.) These terms will be appreciated when it is noticed that no premium is charged on the land granted, but merely the cost of

survey and setting up boundary stones. In other parts of the Peninsula the rent on first-class land is 2s. 4d. per acre for the first six years, and thereafter 9s. 4d. per annum. On second-class lands the quit rent is 2s. 4d. for the first six years, and 7s. per acre afterwards. The survey fees amount to about £50 on a block of 500 acres.

BRITISH GUIANA AND HONDURAS.

The unallotted area of Crown land in British Guiana has been estimated at 88,840 square miles. A great portion, how-

the expiry of the ten years' limit. The rent of lands leased or held under licences of occupancy is 5 cents ($2\frac{1}{2}$ d.) an acre per annum; the licensee must cultivate or beneficially occupy one-fourth of the land within two years. Leases for ninety-nine years are issued for tracts not exceeding 2,000 acres in area for planting rubber—free of rent for first ten years, 20 cents (10d.) per acre for the next five years, and 50 cents (2s. 1d.) per acre thereafter, with the right to purchase the land at the end of the first ten years if the condition as to planting

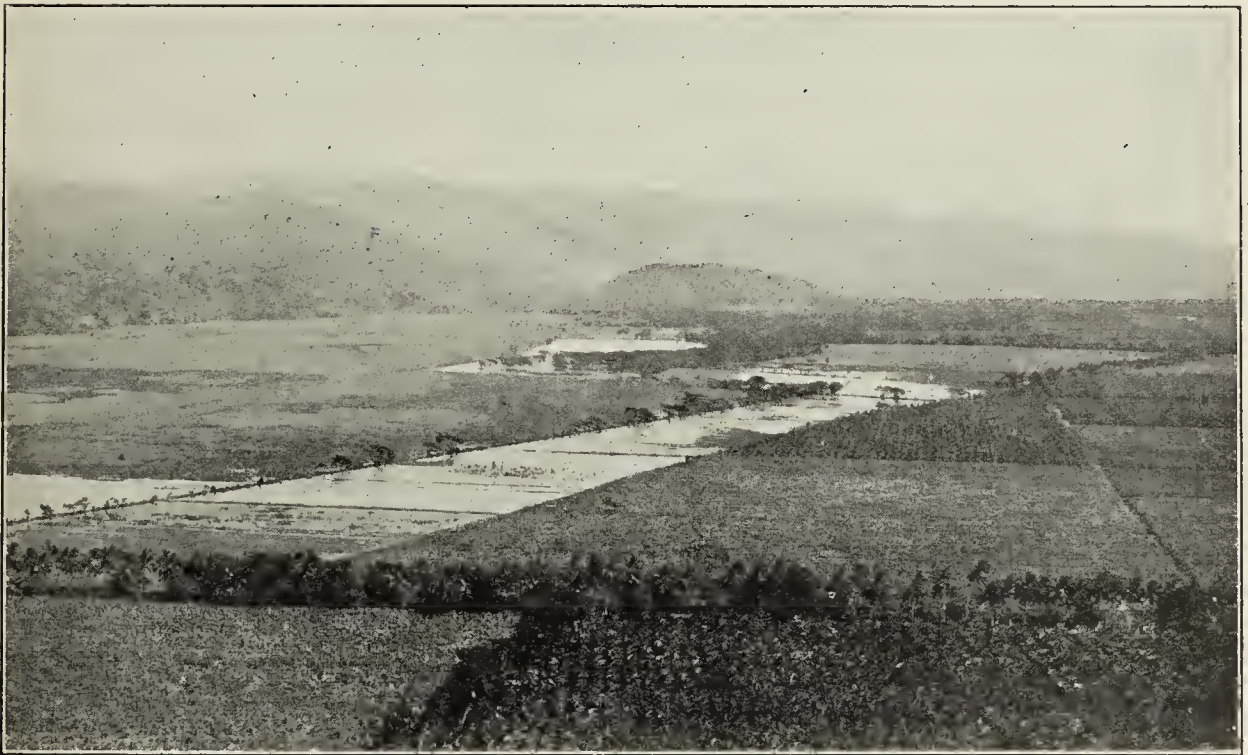


Photo by kind permission of the West India Committee

AN ESTATE IN JAMAICA, BRITISH WEST INDIES

ever, is covered with forest. This must be cleared, and the land must be drained before the soil can be used for agricultural purposes. Lands are sold or leased for agricultural or pastoral purposes in lots of 25 acres or more. There is no limit to the number of lots which may be leased or purchased. The upset price of sale is 50 cents (2s. 1d.) an acre, and tracts of five acres may be obtained as homestead at this price, the conditions being residence and the cultivation of the whole area within ten years. A provisional title is granted for these until

sixty trees per acre on one twenty-fifth part of the land each year has been carried out.

In British Honduras the total number of acres granted is about 2,787,367, and there remain ungranted about 1,949,132 acres, much of which, though admirably adapted for agricultural purposes, is difficult of access, rendering the construction of roads essential before the land can be profitably taken up and placed under cultivation.

The usual sale price of Crown land for agricultural purposes is 3.50 dollars an acre, including cost of survey, and land can be

rented at 25 cents an acre, but these rates may be increased or reduced as circumstances seem to justify. Land served by the railway is sold subject to the condition that a certain proportion be put into cultivation within a stated time. To persons who are prepared to comply with such special conditions as the Governor-in-Council may determine in each case, as, for example, the survey of the land, if unsurveyed, fencing the land in a permanent manner, bringing a portion of the area into cultivation within a given time, expending capital in the erection of machinery or buildings, or in any other manner calculated to develop or promote the resources or industries of the Colony, land can be

bought or leased at practically nominal prices.

OTHER COLONIES.

In Uganda, Crown land can be obtained on a 99 years' lease at a rental of one shilling an acre, subject to re-assessment after the 33rd and 66th year. Three-tenths of such land must be put under cultivation within three years.

In Tanganyika Territory, Crown lands are leased for occupation at prices varying from 6d. per acre upwards, according to location. There are conditions of development which prevent land speculation (see also under *Agriculture, Pastoral Industries*, etc.).



MALAYA

STRAITS SETTLEMENTS AND MALAY STATES

THE term *British Malaya* is a geographical expression signifying the whole of the Malay Peninsula, all of which is now under British influence. This huge territory is divided, politically, into the Straits Settlements, which is a Crown Colony; the Federated Malay States, which are administered by British Residents; the non-federated, or Native Malay States, the suzerainty over which was ceded to Great Britain by Siam in 1909 and which are ruled by native Sultans acting on the advice of British Advisers; and the small out-lying islands of the Cocos-Keeling group, Christmas Island, Labuan, and the little Protected State of Brunei (*q.v.*). The total area is 53,325 square miles, and the population about 3,760,000.

ACQUISITION OF SINGAPORE.

In 1819 Sir Stamford Raffles, an official of the British East India Company, foreseeing the great commercial as well as political advantages of the island of Singapore, situated at the very gateway of the East, where the Straits of Malacca divide the Indian Ocean from the China Sea, acquired it by purchase from the Sultan of Johore with the object of exercising an influence which would tend to check the extension of the dominion of the Dutch, who were at this time slowly gaining an almost complete monopoly of the foreign trade of the Malay Archipelago.

The East India Company had, in 1786, at the instance of Captain Light, acquired the island of Penang, situated at the western entrance to the Malacca Strait, from the Sultan of Kedah, as well as Bencoolen, and other small settlements on the island of Sumatra, which, in 1825, were exchanged with the Dutch for the remainder of Malacca, of which they had previously owned a part.

These possessions were, however, out of the main-stream of commerce, and offered but few facilities for the extension of trade, or for checking the growth of Dutch influence over the whole archipelago; but the acquisition of Singapore, which was not sanctioned for several years by either the British Government or the Court of Directors of the East India Company, formed the turning point in the development of British influence in Malaya.

Singapore was finally ceded to Great Britain in 1824, and some few years later placed under the administration of the Government of Bengal (see INDIAN EMPIRE). This colony, together with the remaining Straits Settlements, now forms one of the most important Crown possessions. The Straits Settlements consist of Province Wellesley; the Dindings, comprising the island of Pangkor and a strip of coast on the mainland of the Peninsula; Singapore Island, in the extreme south; and Malacca, one of the oldest European settlements in Malaya, which originally belonged to the Portuguese, from 1511 to 1640, then to the Dutch, from whom it was taken and restored by the British, and finally ceded to the Empire in return for Bencoolen and the other small British settlements in Sumatra.

Included in the administration of the Straits Settlements are also the Cocos Islands, consisting of about thirty small islands situated about 200 miles from the coast of Java; Christmas Island (1889); Brunei, on the mainland of the island of Borneo; and the island of Labuan, which was annexed in 1907. The Federated Malay States, the Native States of Malaya, and British North Borneo, are all within the jurisdiction of the Governor of the Straits Settlements, who is also "High Commissioner for the Malay States."



A WAYSIDE SCENE IN THE MALAY STATES

Photo, Malay States Agency

The Malay States

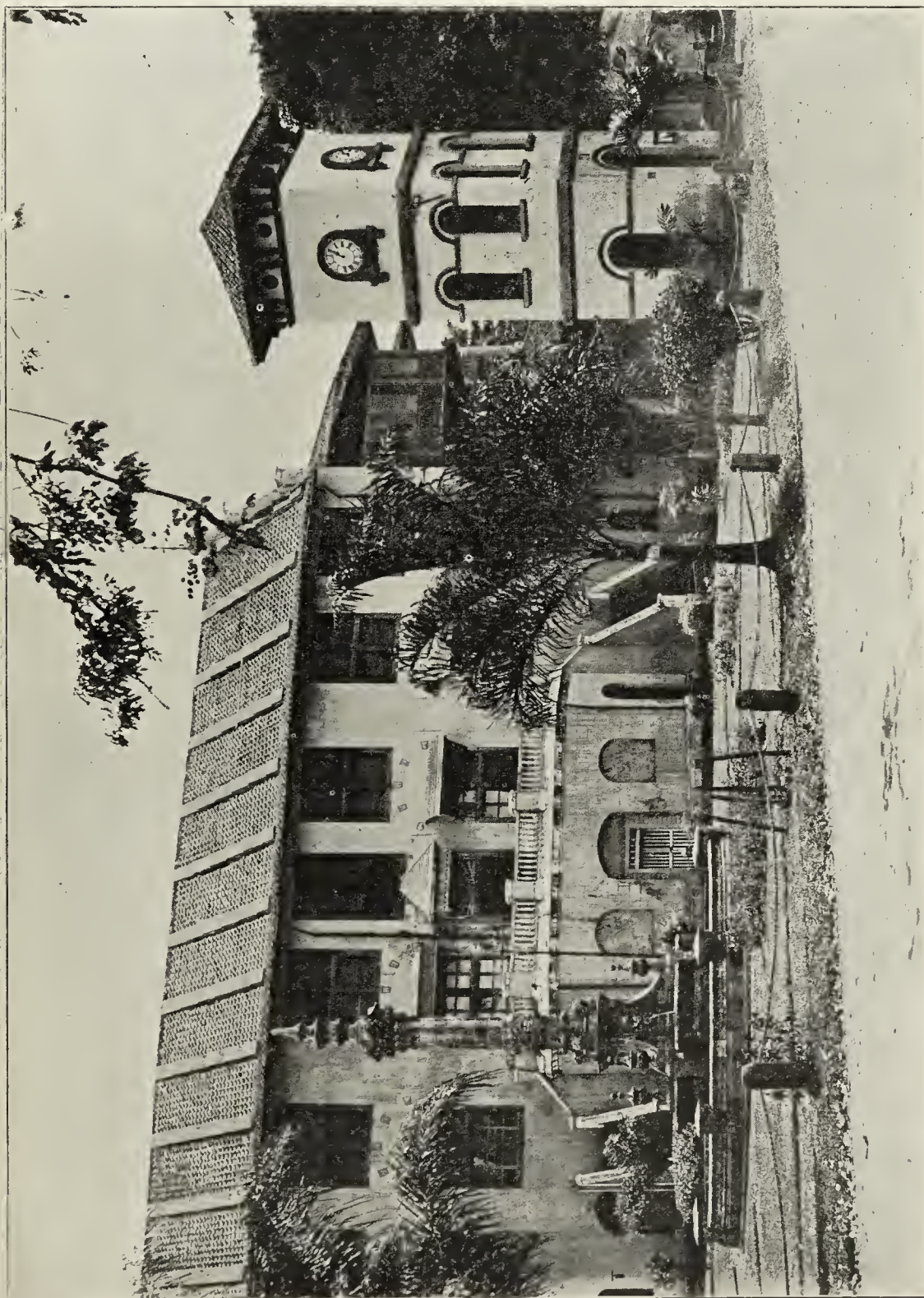
Following the natural line of Imperial expansion, the small Straits Settlements, scattered along the south and west coasts of the Peninsula, gradually extended their influence inland, until the horribly misgoverned native territories surrounding them either themselves asked for British protection, or willingly agreed to accept the guidance of a Political Resident.

The campaign known as the Perak War was of short duration, and was caused by the murder of the first British Resident in this State. It was not the result of a discontented populace but the crime of a Rajah who felt his power declining. Of the Federated Malay States, the Empire has every reason to feel proud, for not only were no portions of this huge territory, which now amounts to about 28,225 square miles, acquired by bloody conquest, but in many instances the population cried loudly for British protection; and who will wonder when it is known that in one state nearly every girl became, for a time at least, the plaything of the Sultan or the local chief, and the wife

of a debtor was taken as real estate; and in another no fewer than forty executions were known to have taken place in one month, while internecine warfare was in all parts rife.

The State of Perak came under British protection in 1874, Selangor in 1874, the Negri Sembilan in 1874 (this State was formed by the incorporation of Sungei Ujong and other small Malay States under the name of "The Negri Sembilan"), and Pahang in 1888. These states federated under British Protection in 1897.

Each State is nominally ruled by its native Sultan and his Council, but is in reality governed very largely by the British Resident, who directs the District Political Officers and looks for instructions to the High Commissioner for the Malay States. Previously to the extension of British protection over these States they acknowledged the suzerainty of Siam by the Eastern custom of annually offering the "Bunga Mas," or Golden Flower, which is really more a mark of respect from a weaker to a stronger power than a sign of the absolute surrender of autonomy.



THE OLD DUTCH STADTHAUS, MALACCA

Photo, Malay States Agency



A MALAY GRAVEYARD

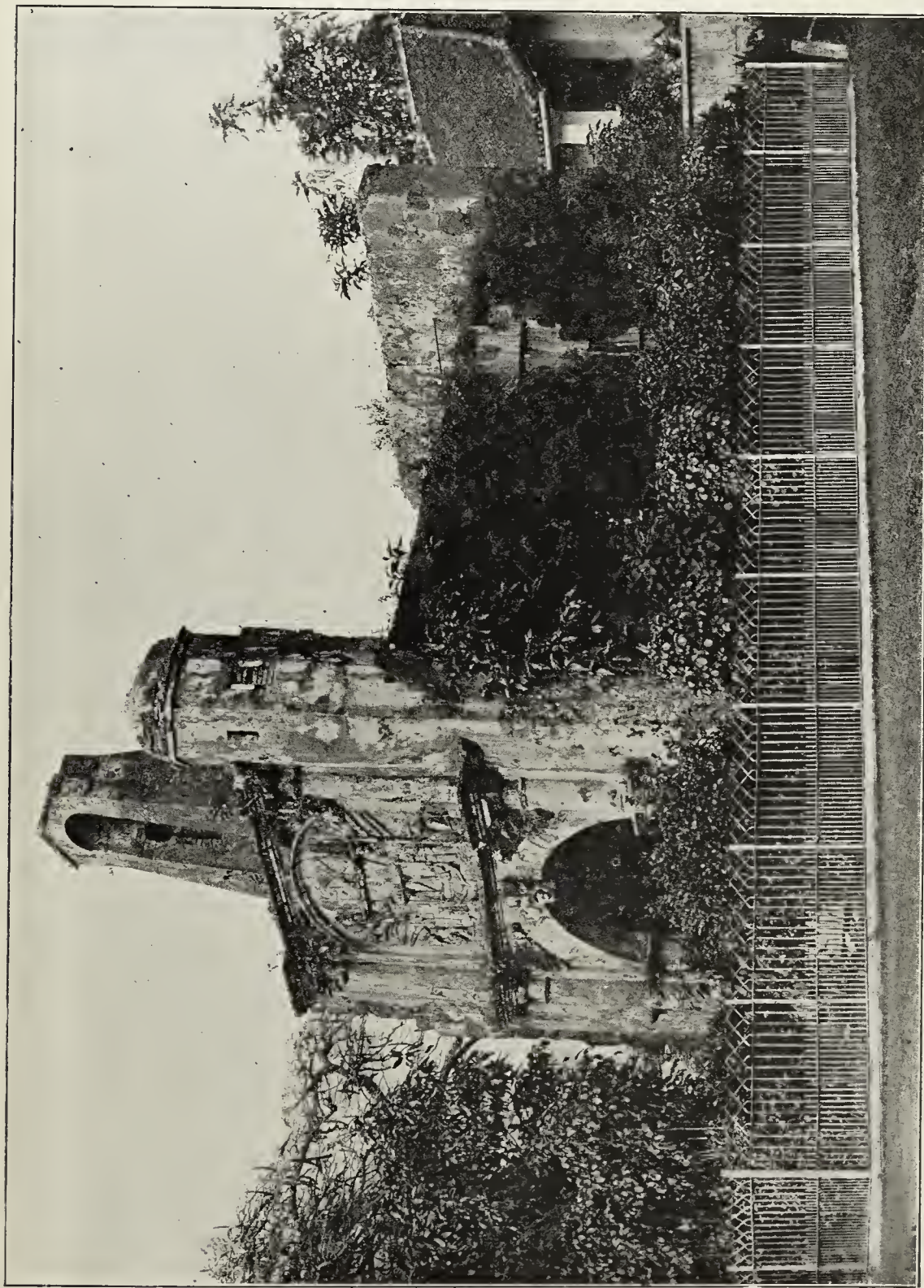
Photo, Malay States Agency

THE FEDERATION.

When the Malay States first came under British protection they were each administered by a Resident, and were politically and financially separate units, being subject only to the Imperial authorities and the Governor of the Straits Settlements. This arrangement worked well for many years, but gradually the States of Perak and Selangor developed to an incredible extent, far out-distancing their less fortunate neighbours. In 1894 the total trade of these two States amounted to over 50,000,000 dollars, whereas in the same year the total commerce of the Negri Sembilan and other States did not amount to 10,000,000 dollars. The result was that the two wealthy States were able not only to support the expenses of their own administration, and to construct railways, hospitals, roads, and other public

works, but also to show an annual surplus of revenue of many thousands of dollars, which was invested in safe Indian securities, while the neighbouring States were only just able to meet the expenses of government, and could not construct railways or public works of any description, which were necessary to increase their rate of development.

This, briefly, was the cause of the Federation of the Protected Malay States. Perak and Selangor had revenues which exceeded the expenditure, and the other States could make but little headway owing to their want of capital. To bring about more equal development all the States were united, the two wealthy lending to the needy, and having a voice in the expenditure of the money. So well has this arrangement worked that the commerce of Malaya has increased literally by leaps and bounds.



THE HISTORIC GATEWAY OF ALBUQUERQUE'S FORT, MALACCA

Photo, Malay States Agency

THE NATIVE STATES.

As in the case of the States now federated under British protection, the five Native States : Johore, Kedah, Kelantan, Trengganu, and Perlis were more or less under the nominal suzerainty of Siam until, in 1909, that country ceded the suzerainty to Great

Britain. Chiefs, British Agents are stationed in each State, but their work is principally advisory and their influence is exerted to prevent the abuses of autocratic Eastern rule which come within their respective spheres.

PENINSULA AND PEOPLE.

This portion of the British Empire includes the whole of the Malay Peninsula, which consists of a narrow tongue of land 464 miles in length and nowhere more than 216 miles in breadth, which is the most southern extremity of the Continent of Asia. The Peninsula is very mountainous. Its highest peak is Gunong Tahan, 7,186 ft., where a hill station is situated. Its longest river is the Pahang, which extends for a distance of 330 miles. Except where it has been mined or cultivated, a dense tropical forest covers the whole country, including the hills. In spite of its being so close to the Equator, its climate is not oppressively hot, for it has the sea all round it, and a breeze is always blowing either from the sea or from the mountains. Its most ancient inhabitants still surviving are the negrito and semi-negrito *Saki*, a dark-brown-skinned race of jungle dwellers. The Malays, who are, in point of antiquity, the second race in the Peninsula, colonised it from Sumatra about 500 years ago ; and brought to it their own name, which is probably Sanskrit, and given to them by a Sanskrit-using Ayran race from India who found the Malays in the mountainous country (Sk. *Malaya*) of Su-



SAKI, OR ABORIGINES, OF MALAYA

matra. Britain, thus the whole of the Malay Peninsula became a British Protectorate. These Native States, which have a total area of 24,500 square miles, are far behind both the Straits Settlements and the Federated States in their degree of civilisation, exploitation and commerce. Although they are ruled entirely by their own native Sultans or

The Chinese and Indians have maintained trading relations with the Malays for many centuries, and, since British protection, have come to live in the Peninsula in ever-increasing numbers.

The chief seaports for ocean-going traffic are Singapore (25,000,000 tons) and Penang, in the Straits Settlements, and Port



SPECIALLY DRAWN FOR THE ENCYCLOPEDIA OF THE BRITISH EMPIRE BY AH LEE



A MALAY FAMILY

Swettenham in the Federated Malay States.

The Straits Settlements

This Crown Colony includes Singapore, Penang Island, Province Wellesley, the Dindings—consisting of Pangkor Island and a narrow strip of mainland territory—and Malacca. It has its own oversea dependencies in the Cocos-Keeling Islands, a coral group in the Indian Ocean on the route from Colombo to Australia, and Christmas Island, which is famous for its enormous phosphate deposits. The total area of the whole Colony is, however, only 1,600 square miles, but the population number over 1,060,000 and the shipping trade is very large.

The Governor of the Straits Settlements is also High Commissioner for Malaya and has jurisdiction over the British sphere in and around the Islands of Borneo and Labuan (*q.v.*).

SINGAPORE.

This island, which lies almost on the Equator and possesses a very hot and damp climate, has an area of about 217 square miles and a population of mixed races numbering about 540,000. The town of Singapore, which is the capital, is the headquarters of the Government of the Straits Settlements, and the place of residence of the High Commissioner for the whole of Malaya.

The Port of Singapore ranks next to London and Hong-Kong in the average amount of European shipping annually entering and clearing. About 16,000 vessels, exclusive of native craft, use this port every year. It is the maritime junction for steamers going to and from Europe, the Far East and Australasia. It is famous as one of the first free ports in the world. The average annual tonnage of shipping which enters and clears amounts to approximately 25,000,000 tons, and it is destined to become one of the principal British Naval Stations of the East. From the strategical point of view it has a position unequalled in this part of the world, because it possesses all the geographical essentials of a naval base :



Photos, Malay States Agency

MALAY WOMAN WEAVING A SARONG



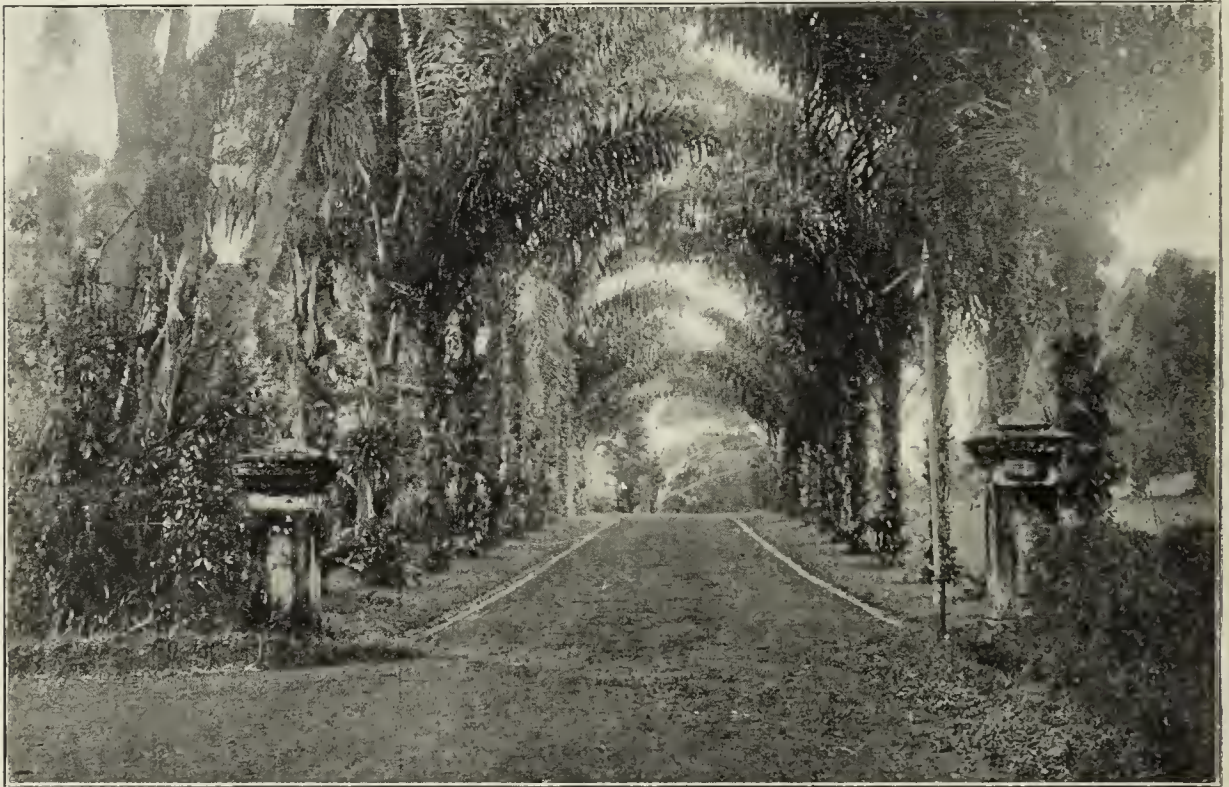
RIVER AND JUNGLE IN MALAYA

Photos, Malay States Agency

(1) it is sheltered and can be naturally defended ; (2) encloses a fine harbour and anchorage ; (3) commands the Straits of Malacca, one of the great but narrow thoroughfares of the sea ; and (4) is conveniently situated in relation to naval operations in the Far East and also in the Australasian and Indian waters. For these reasons a modern naval base is being constructed on this island, which has long been called "The Gibraltar of the East."

with nothing to disturb the quietude except the swish of a bird or the distant hooting of a steamer's syren, the knotty problems which confront the rulers of the great native city at the water's edge, with its teeming Asiatic population of 540,000, composed of many nationalities speaking many tongues, the principal being Chinese, Dyaks, Malays, Siamese and Indians.

Enter either the Kampong China (Chinese quarter) the Kampong Kling, or the Kam-



Photo, Malay States Agency

AVENUE OF SUGAR PALMS, THE GARDENS, SINGAPORE, STRAITS SETTLEMENTS

There is no distinctly defined European residential quarter in the town of Singapore ; the houses of the officials and merchants are scattered over a wide area, some miles from the native town and the business quarter. Scarcely one of the many fine residences is not surrounded by extensive grounds, gay with the growth of the tropics, and many are perched upon tiny green-covered hills in all parts of this small island. From the French windows of these houses a wonderful *coup d'oeil* of variegated colouring stretches around. It is almost impossible to imagine, when sitting in the cool shady retreats of the grounds of these English homes in the East,

pong Siam, and the European streets, houses, wharves, and general aspect disappear entirely, and yet there is a certain cleanliness and order which marks the difference between British rule and that of the Oriental. Go into the worst portions of Singapore and you will not see anything which raises the nauseous feeling often choked back with difficulty in populous corners of the "Flowery Land." The miles of narrow streets bordered by semi-native houses and bazaars, gay with banners decorated with dragons, elephants and devices innumerable, contain hundreds of thousands of Asiatics who live in happiness and comfort, compared to the state

of semi-slavery in which they existed in China and Siam. It must be remembered that every year the native population of Singapore, as well as that of the Straits Settlements, is swollen by the immigration of thousands of Chinese, Indians, Malays from the Protected States, and many other nationalities, who are beginning to look upon Singapore as the commercial and social Mecca of the world.

In the East, news travels on the wings of the wind, and at Seoul, at Bangkok, Canton

the tale goes on and bears fruit in the annual stream of immigration.

Pass through the Kampong China, where silks are everywhere displayed from the stall-like shops, into the other native quarters, for almost every race has its "Kampong," and the sandal-wood-perfumed atmosphere will mingle pleasantly with the odour of burning joss stick and rose-water; Benares brass work will be shown instead of crude paintings on silk or tin; then Siamese pottery, ivory carvings, and curios innumerable



IN "CHINA TOWN," SINGAPORE

Photo, Malay States Agency

or Peking, the whispered word goes round. The freedom, wealth, and happiness of the natives of Singapore are told in the puzzling phraseology of the story-tellers in the bazaars, which are the news bureaux of every city in the East; and, even as Hong-Kong and Shanghai grow in favour among Chinese, so does Singapore and British Malaya among Celestials in the populous island of Hainan, and the city of Swatow. Although the wealth of the native merchants of Singapore is always magnified, and the happiness of the masses exaggerated, in every town in which the story is told by bazaar *raconteurs*

(some of which bear the hall-mark of Birmingham) will be shown by the pestering native shopkeepers. All the products of the East from birds of bright plumage in wooden cages to dainty silver models, cloisonné work, stone Buddhas, coloured beetles, and the curious ornaments of Confucius, are displayed in the bazaars of Singapore. Chinese signs, written on long boards and coloured banners, give the truly celestial picturesqueness to the native streets, and, as in Hong-Kong, humorous announcements are by no means wanting, "comee to me, me honest man," "no swindle here," "you can cheate me," "I no spitee



CHINESE STREET, SINGAPORE

At first sight it appears that the whole of this long thoroughfare is celebrating some national event with a display of Bunting. Closer investigation, however, reveals the decorations to consist of the week's washing!

on clothes when washen," are specimens of the highly attractive advertisements which adorn the portions of the Kampong China most frequented by curio-hunters.

The jabbering in the bazaars is quite beyond description; the easily learnt Malay *patois* is shouted from every side, with a considerable mixture of the less intelligible Chinese. Klings, covered by a few rags, and Malays jostle the more often well-dressed Chinamen, and occasionally a turbaned native of Northern India may be seen.

When the native towns of Singapore, with their miles of gay bazaars, dingy semi-native houses, shops, and crowded waters, with jostling Javanese boatmen, have been seen and studied, it becomes a wonder how the whole is so well governed and regulated. Wherever Asiatics, and especially Chinese, congregate, there are problems which never arise in the administration of either white or black settlements. On several occasions thousands of natives in Singapore have commenced rioting over practically nothing at all, and the complicated nature of the problems which almost daily have to be solved in the administration of this Colony

need both a good judgment and a firm hand.

The rural portions of this small island are hilly and well-wooded. The rainfall averages over 100 inches a year, and the foliage is perennial. The railway to Bangkok (capital of Siam) was opened for passenger traffic in July, 1918. This line passes through a portion of the Malay States (*q.v.*).

PENANG.

Next to Singapore in commercial importance comes the Island of Penang, with its strip of coast on the mainland of the peninsula called Province Wellesley. The island is distant from the shore about two miles, and has for its capital Georgetown, a port which enjoys considerable trade with the protected States. During recent times Penang and the whole of Malaya have been favoured by the rapid development of rubber cultivation, which has been responsible for the increase in the general commerce of the Settlements as well as that of the Federated States. Georgetown has, during the last ten years, more than doubled its maritime commerce, and is now a place of considerable importance. The average annual value of



RICKSHAWS IN A SINGAPORE STREET

Photo, Malay States Agency

its oversea trade is about 670 million dollars. The development of the Federated States has already done much, and is destined to do more, to increase the prosperity of Penang, which is the chief emporium of the west coast of the peninsula.

The population of Penang is 185,000, and of Province Wellesley, 136,000. The most numerous are the Chinese, followed in order by Indians and Malays. The Europeans number about 1,400.

From Penang a railway—the first link of which is a steam ferry to the mainland—

Chinese town. There are several good hotels and a funicular railway affording wonderful views of the surrounding country.

One of the most interesting sights on Penang Island is the Chinese temple at Ayer Itam, which is approached through an unprepossessing collection of squalid huts, and the granite stairway alone leads the traveller to suppose that to follow its massive steps must reveal something worth seeing. Surmounting them one reaches a wall, and, passing through its gates, realises at once that here is not a temple, but a series of



ENTRANCE TO KEPPEL HARBOUR, SHOWING MALAY VILLAGE ON PILES IN THE SEA

runs through to Singapore and other places in the Straits Settlements and Malay States. A junction has also been made with the Siamese lines, and the journey to Bangkok occupies about 40 hours. Previous to 1918, this journey occupied six days by sea.

Georgetown, which is situated on the eastern headland of Penang Island, is a thoroughly modern city, possessing a fine sea-front, several busy European thoroughfares and many shops, wharves and warehouses, in addition to a most picturesque

many temples, built in terraces up the hill. On the lowest tier is the pool where lie, inactive until you buy for them a bunch of green kangkong herb, dozens of amiable tortoises.* Above is the gold-fish pool, surrounded by marigold, rose, gaillardia and chrysanthemum in pots. Looking up the hill one sees, stretching up and up continually, the ramping roofs, the raking gables of Chinese temple architecture. On the walls are lettered tablets in royal blue.

* F.M.S. Railway Guide.



GOVERNMENT OFFICES, ALOR STAR, KEDAH

Photo, Malay States Agency

The boulders of the hill are incised with Chinese characters in red. On every hand are shrines. Brass blazes in sunlight, or warms the shadows, in urns and jars and gongs and vessels of all shapes. Temple



Photo, Malay States Agency

MALAY TYPES

surpasses temple. In one a solemn figure broods and compels reverence. In another laughs a jolly god, and you, in turn, smile at his jovial countenance. Side by side sit hideous and gigantic demons, crushing the wicked under foot. Everywhere is Buddha—

Buddha brass, Buddha alabaster, Buddha gold leaf, but always Buddha mysteriously at peace. From the very top of tops you look down again across the flamboyant roofs and see Penang beneath you, a sea of waving palms. At length, having wandered where you will, you are invited to drink a cup of complimentary tea, and the visitor's book is laid before you, full of famous names. On the walls of the tea-room hang the signatures of the Duke of Connaught, Admiral Togo and Chulalongkorn of Siam. It is explained to you how each race of Buddhists has here its own temple, Siamese, Japanese, Chinese, Burmese, or Singhalese.

THE DINDINGS.

This portion of the Straits Settlements includes the Island of Pangkor and a small strip of coast territory on the mainland of the peninsula. It is the most backward of the Settlements and contains no towns worthy of the name. It is not served by the Malay States Railways and is of minor commercial importance. Much of the territory of the Dindings and Malacca, as well as that of the Federated States, is covered with dense forest through which it is difficult to penetrate. Even for one mounted on a friendly elephant, with a number of native followers, the constant use of the kriss for cutting off branches of trees, which threaten to sweep even the flies from the back of the elephant, is absolutely necessary. In most parts of the colony, as well as in the Federated States, roads connect all of the inland townships not linked-up by the railway, which has now largely taken the place of the elephant and doolie in the interior of the peninsula, in the same way as the launch and coasting steamer are fast superseding the sampan and junk in Malayan waters. Elephants are, however, still used for cross-country journeys, and form the only means of land locomotion in the Eastern Native States.

The headquarters of the administration are at Lamut, and steamship communication is regularly maintained between this place, Pangkor, and Singapore.

The climate of the Dindings and the whole of Malaya is decidedly tropical. In the interior the mists of early morning and the voracious mosquitoes must be carefully



RAFFLES SQUARE, SINGAPORE
Capital of the Straits Settlements and Administrative Headquarters for the whole of British Malaya

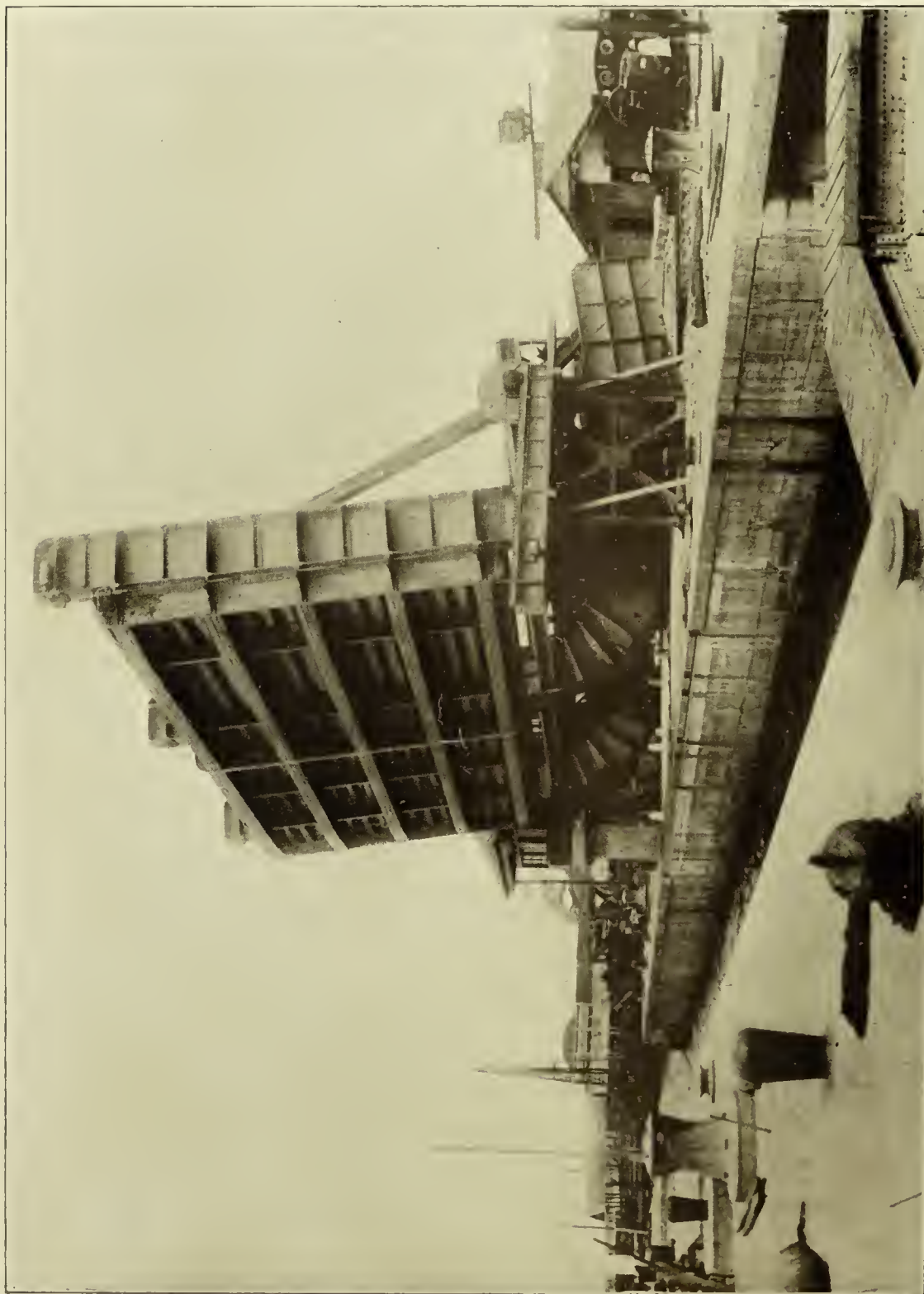


GOVERNMENT HOUSE, SINGAPORE



THE ARTIFICIAL CAUSEWAY WHICH JOINS SINGAPORE ISLAND TO THE
MAINLAND OF THE MALAY PENINSULA

Photo, Malay States Agency



THE ELECTRICALLY-OPERATED BRIDGE WHICH CONNECTS SINGAPORE ISLAND
WITH THE MAINLAND

Photo, Malay States Agency

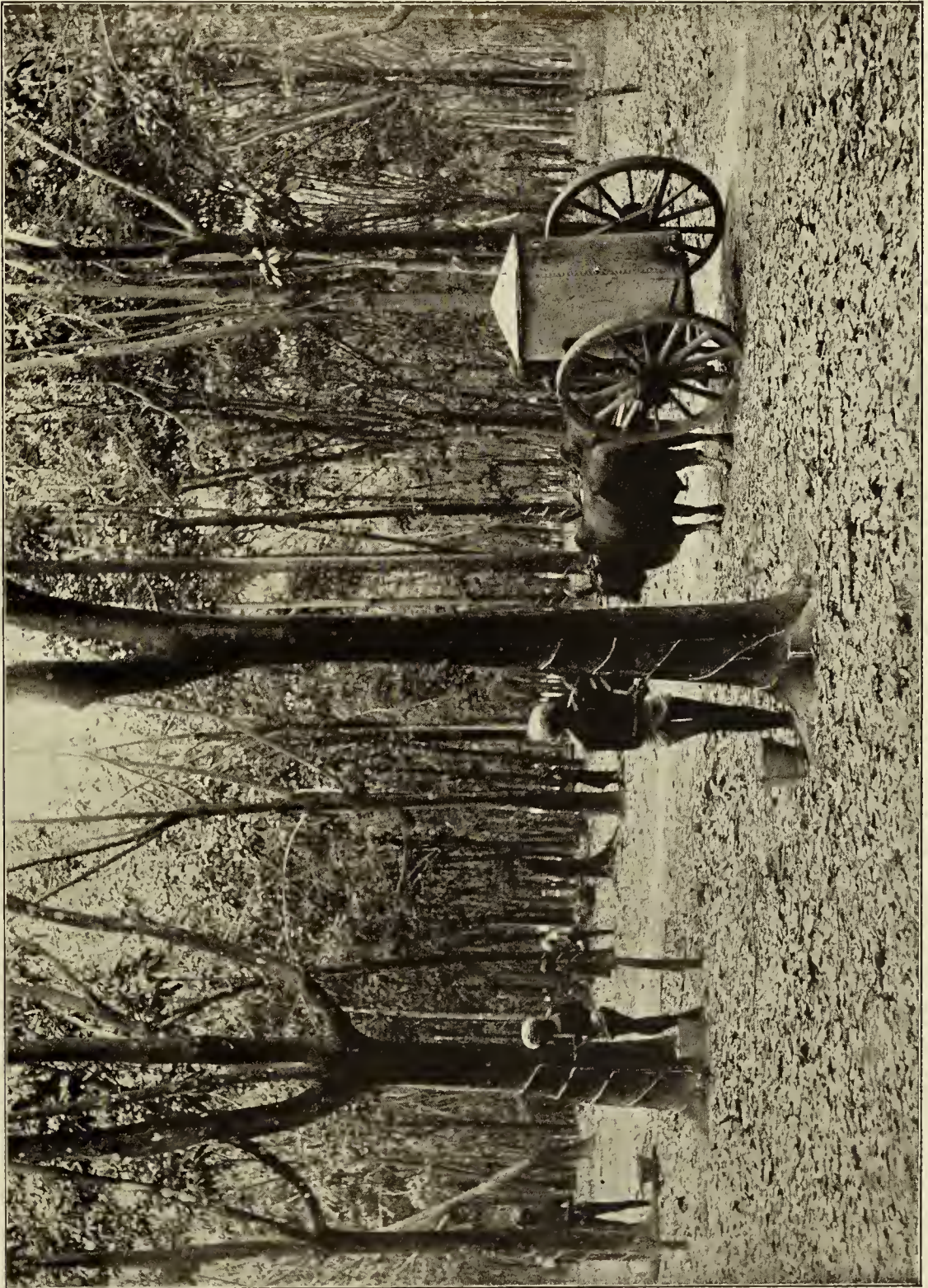


Photo, courtesy Canadian Pacific Cruise Dept.

COCO-NUT PALM TREES AT SINGAPORE



GOVERNMENT OFFICES, KUALA LUMPUR, CAPITAL OF THE FEDERATED MALAY STATES
Photo, Malay States Agency



AT WORK ON A RUBBER PLANTATION

Photo, Malay States Agency



TAPPING A RUBBER TREE
The most modern method

Photo, Malay States Agency



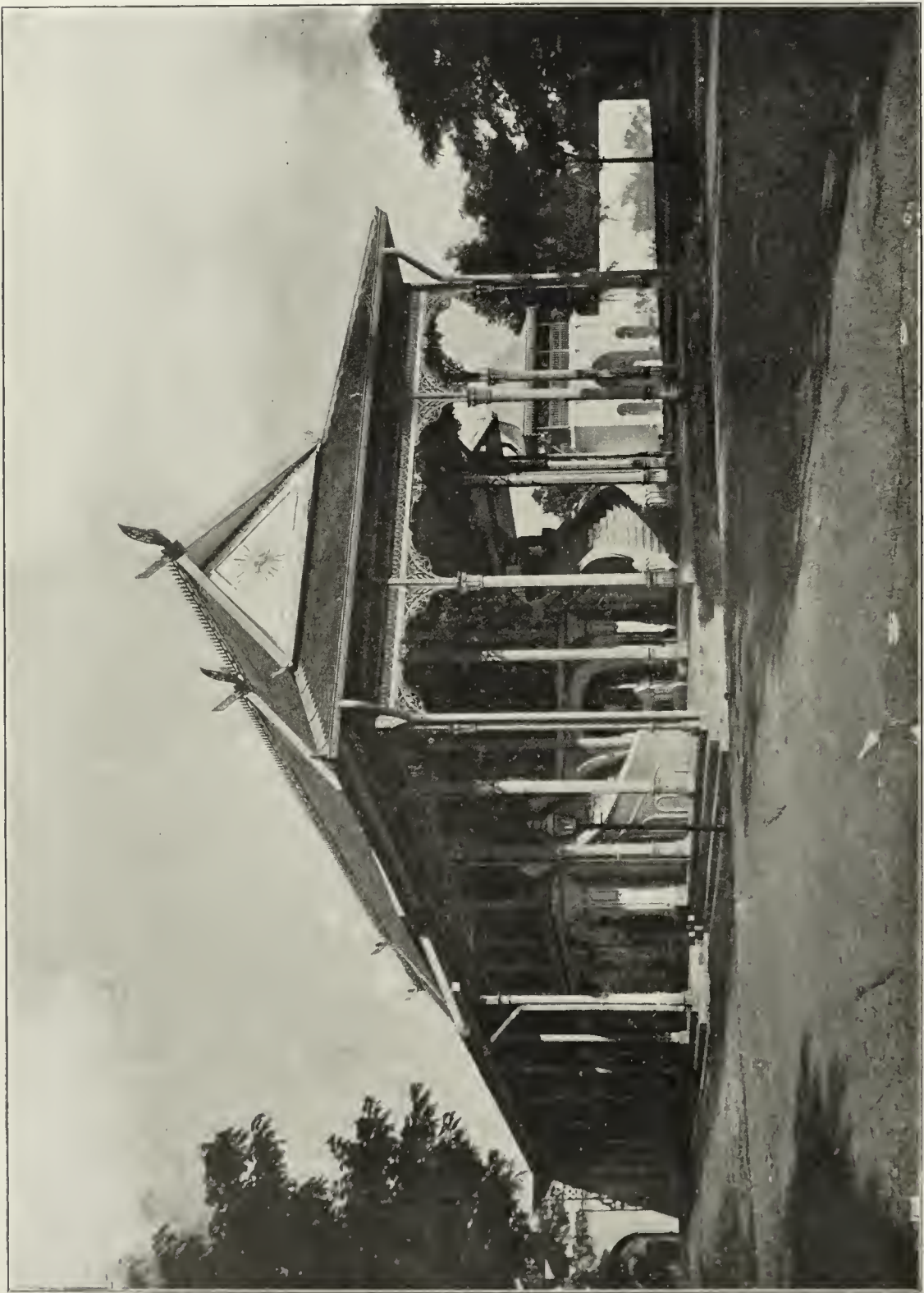
MALAYS FISHING IN THE STRAITS OF JOHORE

guarded against. The rainfall is heavy in all parts of Malaya, and in the Dindings it amounts to about 120 inches annually. The population numbers about 17,000.

MALACCA.

This territory, which forms a wedge into the Federated State of Negri Sembilan, is the largest of the Straits Settlements, but much of the country is covered with primeval forest. The railway line, which runs through the territory to Malacca town, from the junction at Tampin, is bordered by walls of luxuriant tropical growth. About this territory nothing need be said, for the country differs but little from that which will be described on the journey through the Federated States. The population of this settlement is about 190,000. Much of the cleared land has now been brought under cultivation, in which the Chinese have shown more enterprise than the lethargic Malays. The principal crops are rubber, copra, rice, tapioca, spices, coffee, pepper, cane and betel-nut. The rainfall in Malacca averages only 90 inches annually.

The quaint little capital of this Settlement, Malacca Town, has, at various periods of its curious history, been the seat of Hindus, Chinese, Portuguese, Dutch and English. It is quite a small town, being made up principally of a few narrow streets, in which Chinese are the most numerous and wealthy inhabitants. The principal streets are Yonker Street, which has an unusual number of curiosity shops, and Heeren Street, which is formed by two rows of box-like Chinese houses, the residences of the wealthy. Some of these much-ornamented houses are built up on piles, as they back on to the sea. The chief features of interest are the Stadhaus, erected by the Dutch, and still the local government headquarters; some adjacent Portuguese coats-of-arms of ancient workmanship, and a hideous Hindu stone image, which is said to date from the fourteenth century, and is the oldest relic in Malacca. Among the buildings, Christ Church, which was built by the Dutch in 1750, and contains some beautiful antique silver ornaments and other treasures; the old gateway of the Portuguese fort, with its tablet attributing it to Alfonso de Albuquerque (see *History of*



THE BALEI BAZAR, OR COUNCIL CHAMBER, ALOR STAR, KEDAH

Photo, Malay States Agency

India); the small obelisk commemorating the British, Indian and Arab troops who lost their lives in the Sungei Ujong expedition of 1875; and the Portuguese fort on St. John's Hill form the only objects of antiquarian interest. There are some respectable modern buildings, a curious Chinese temple, and the dilapidated ruins of the famous Nossa Senhora da Annunciada. In this Church the body of Saint François Xavier, S.J., rested

and is situated a few miles off the north-west coast of Borneo, of which commercially it forms a part. It was transferred to the Crown of England in 1846 by the Sultan of Borneo, and was first administered by the famous Raja, Sir James Brooke (see SARAWAK). Besides possessing a good harbour at Victoria, it is the centre of trade for a large portion of British North Borneo and the surrounding islands of the Malay



A CHINESE TEMPLE

Photo, Malay States Agency

previously to its transference to the Portuguese Indian Settlement of Goa, in 1553. The native industries of Malacca are basket and lace making.

Dependencies

The Straits Settlements have as dependencies the island of Labuan, Brunei, Christmas Island and the Cocos group. The first of these has an area of about 30 square miles,

Archipelago. Its chief products are coal, rubber, sago, canes and *bêche-de-mer*. About the Cocos group, little need be said, for they have but few inhabitants and little commerce. There is a station of the Eastern Extension cable on Direction Island.

Christmas Island has an area of 58 square miles and a population of about 1,000. The vast phosphate deposits are worked by a company and the exports amount to over 128,000 tons a year.



MALAY FISHERMEN USING THEIR CURIOUS BUTTERFLY NETS



A MALAY FISHING VILLAGE

Photos. Malay States Agency.



CARRYING GROTESQUE IDOLS IN A FIRE-WALKING FESTIVAL *Photo, Malay States Agency*

Federated Malay States

The four Federated Malay States—Perak, Selangor, Negri Sembilan, and Pahang—comprise an area of 28,225 square miles, with a population of over 1,400,000, made up of Chinese, Malays and allied races, Indians, Eurasians, Europeans (3,500) and a few thousands of other nationalities. This protectorate is owned by Malays, developed by Chinese and Indian labourers, and governed and financed by Britishers.

Unlike India, Ceylon, Burma, Siam and Java, the Malay Peninsula has no ancient monuments, no archaeological remains of any value pointing to a prehistoric civilisation, no records to enable us to build up theories with regard to early man. The aborigines who lurk in the recesses of the forests or on the thickly-wooded mountain sides can tell us nothing of the early days of the peninsula. They are a shy, harmless race, comparatively few in numbers, and altogether a negligible quantity in consider-

ing the future development of the country. With other Eastern lands, it shares the general term of "the land of sunshine" given to it by Arab navigators. Alexander's Macedonians took back to Europe from India stories of its mineral wealth. The ancient historian Josephus sought to connect the Golden Chersonese with the land of Ophir. To-day it is known as the most important individual contributor to the world's output of tin, and the most successful and attractive territory for the cultivation of plantation rubber, the growth of the rich coco-nut palm and other tropical products.

For a better understanding of the political situation in Malaya, it is necessary to explain the relations that exist between the British authorities and the native rulers. Under the High Commissioner, whose headquarters are at Singapore, the affairs of the Federated Malay States (Perak, Selangor, Negri Sembilan and Pahang) are directed by the Chief Secretary, residing at the Federal capital,



SUGAR-CANE SELLERS

Kuala Lumpur, in Selangor. A Federal Council, comprising the native rulers and their British advisers, as well as representatives of the planting and mining interests and the general community, sits periodically to pass enactments and to consider the Budget. In each of the four States, there is a British Resident to aid the Sultan in the administration of affairs, and in each State there is a State Council composed of officials and unofficial representatives of the leading industries.

CLIMATE.

The climate of the Peninsula is, of course, tropical, with a moist heat, which is not usually felt to be oppressive. Regard being had to the geographical position of the country, the climate, as a whole, notwithstanding the continuous heat and the excessive humidity of the air, has been proved to be healthy for Europeans of sound constitution who lead regular and temperate

lives. One marked feature is the absence of local seasonal variations, or of any prolonged epochs, whether of rain or drought, or of high or low temperatures. The temperature varies considerably according to locality and elevation. In the lower and more populous parts of the Federated Malay States, with a height above sea-level varying from 50 to 500 feet, the shade temperature varies from 79 deg. to 90 deg. F. The average mean temperature in the shade may be said to be from 80 deg. to 85 deg. A great point about the temperature is that the nights are always cool (temperature from 70 deg. to 75 deg.), and that it is possible, therefore, to obtain refreshing sleep.

Communications

It was evident to the early British officials that no real development of the country was possible without rapid means of transport. Road-making was first undertaken. In all directions the jungle was pierced



WATER WHEEL FOR IRRIGATING FADI RICE FIELDS



TAMIL WOMEN



A MALAY TOWN IN THE INTERIOR

Photos Malay States Agency

by roadways, mile was added to mile, until to-day no country situated in the tropical zone has a better road system. The mileage in these States amounts approximately to 2,630 metalled roads and 1,817 unmetalled, while bridle-paths amount to nearly 2,000 miles in length. The gradients are easy, the surface smooth and well maintained, notwithstanding the occasional ravages of the heavy rains, and the motor car is now used extensively by private owners, and motor omnibuses and lorries by the Railway Department as auxiliaries to the railway system.

passengers to see the Federal Capital of the Malay States, Kuala Lumpur, in the State of Selangor. The trains are lighted by electricity, and have sleeping and restaurant cars attached. The whole system is Government-owned, and the administration is centralised in the F.M.S. Railway Department in the Federal Capital.

Another branch, constructed quite recently, crosses the State of Pahang, traverses a portion of Kelantan, one of the unfederated Malay States (*q.v.*), and joins the Siamese railway system. The line, approaching Siam



ON THE PERAK RIVER

Photo, Malay States Agency

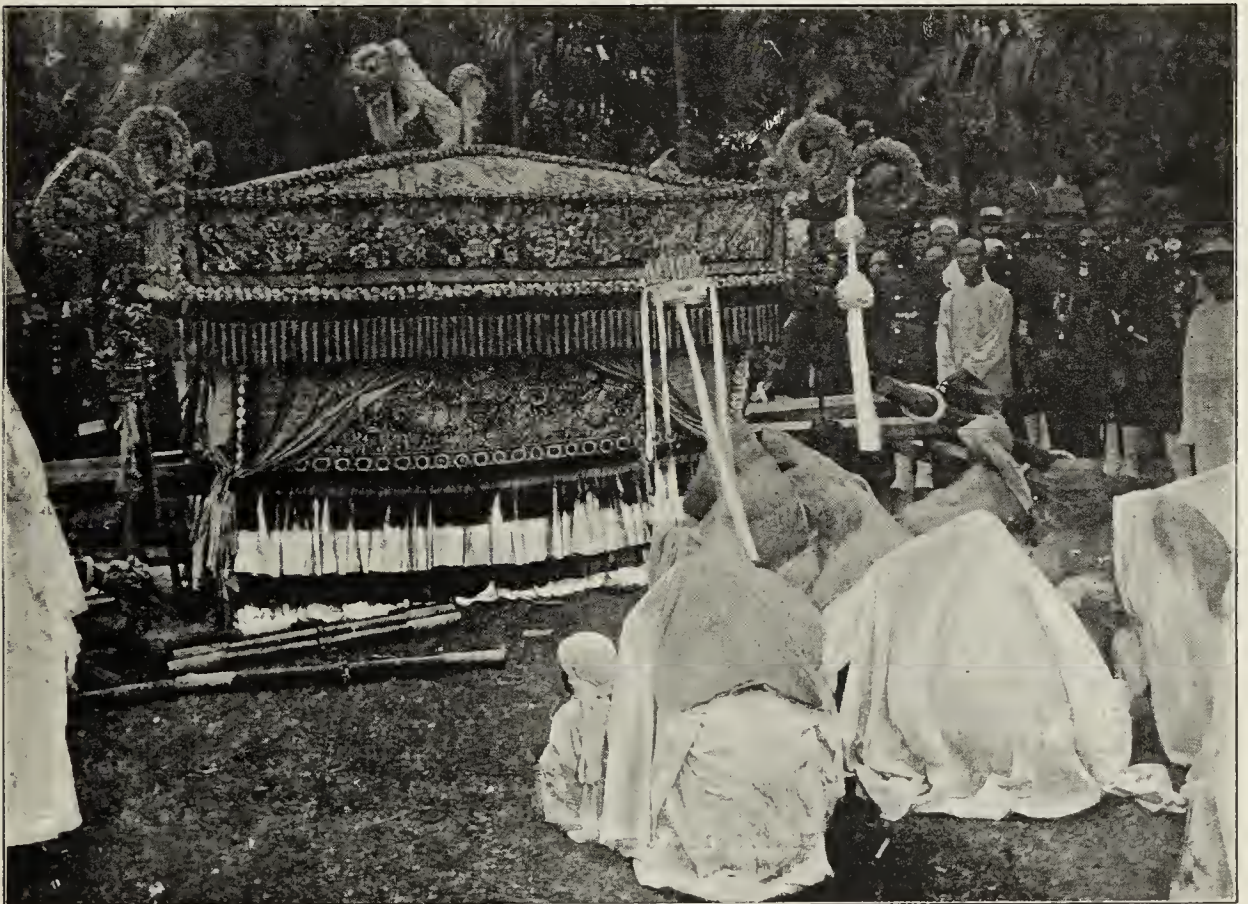
The total length of the railway lines in Malaya is approximately 1,100 miles, but this system is being rapidly extended, and branch lines added to the trunk-road which runs from Penang to Singapore. By this means one can traverse the whole of the western side of the Peninsula, from Province Wellesley to Malacca, passing through the States of Perak, Selangor and Negri Sembilan, skirting the border of the fourth Federated State, Pahang, and passing through the independent native State of Johore. The journey from Penang to Singapore occupies about 23 hours, time being allowed for

on the west, comes up from Singapore and passes through the States of Perlis and Kedah. In this way the whole Peninsula is now served by railways.

An account of a journey over these lines will give the best possible idea of the general features, towns, topography, and points of interest in these rapidly developing and prosperous States. The starting point is Penang in the Straits Settlements, aptly described by Sir Frederick Treves as "a strip of verdant sedge upon the ocean," "brilliant with every tint of green."



MARRIAGE PALANQUINS, STATE OF TRENGGANU



A CHINESE FUNERAL

THROUGH THE STATE OF PERAK.

The new causeway carries the train from Penang Island to Prai, on the mainland. The first 20 miles, occupying about three-quarters of an hour, are through the Settlements territory of Province Wellesley. Afar off, to the east, is the main range of hills, and, as the morning express traverses the clear spaces of the rice-fields, the light groves of the coco-nut palms and the dim aisles of the

and the Chinese grow sugar, tapioca and rubber. The last railway station in this great rice-growing district of Krian is Bukit Merah.

The interest of the country-side fades somewhat on leaving the Krian district, but at this point the traveller is at length under the shadow of the great range of granite hills lying always to the east as he progresses through the peninsula. At one time



PROCESSION OF ELEPHANTS AT KUALA KANGSAR

Photo, Malay States Agency

rubber estates, the mists wind lazily in white wreaths about the blue distances. By the time breakfast is over the train will have crossed the Krian River, the boundary between British and Malay territory. The Krian district is a wide stretch of flat land, given over largely to rice cultivation, though sugar cane, coco-nuts, tapioca and rubber are also grown. All the various native races take part in agriculture. There are immense stretches of Malay rice fields; coco-nuts are grown by everyone, whilst the Europeans

the Ulu Sepetang neighbourhood was thought to be rich in silver, lead, copper and gold, but the deposits, if they exist, have never yet been worked successfully.

On either side of the railway, between the stations of Krian Road and Kamunting, lie what are probably the two largest open-cast tin mines in the world. These two mines between them employ more than 3,000 Chinese coolies, and present a perfect example of Chinese methods of working, for all the over-burden and the tin-bearing



DRYING RATANS



MAKING INDIGO

Photos, Malay States Agency

ground are removed by hand, machinery being used only for the pumping necessary to keep water out of the mines. Both mines are easily visible from railway and road, which here run parallel.

TAIPING.

The town of Taiping lies on the Larut alluvial mining field, which first attracted the Chinese, and, later, served as the battleground between opposing Chinese factions

change of lights upon the mountains in the evening.

The social centre of the European quarter of a town in Malaya is always the recreation ground and the club overlooking it. In Taiping there are two clubs, the Perak Club on the west, and the New Club on the east of the recreation ground. Beyond the Taiping recreation ground lie the public gardens—the most beautiful in the Malay States. Through these gardens, beginning on the glacis of the fort and magazine behind



GROUP OF SAKI, OR ABORIGINES, WITH BLOWPIPES

Photo, Malay States Agency

until the arrival of the British to aid in the administration of the country. In itself the town is one of the most picturesque in Malaya. The streets are shaded by rows of the angsema tree, which at irregular intervals bursts forth into a riot of blossoms, even more yellow than those of the laburnum. These petals it rains down in golden snow upon the street, providing a carpet fit for a Sultan, for yellow is the royal colour in the East. Taiping lies close to the main mountain range, and from its public gardens by the lake is seen the wonderful

the New Club, run the nine-hole golf links.

From Taiping there is a broad and good path leading up the hills to the Sanatorium at the top, 4,000 feet up—three hour's easy walking. This path passes through virgin jungle never touched by the hand of man, except where the trees have fallen, or were likely to fall across the path. Fine views of the rolling, forest-clad, uninhabited hills, and of the river flats, with their mines and cultivation, can be seen from all points. The Taiping hills offer the best opportunity of seeing, with a minimum of time and trouble,



MALACCA RIVER, SHOWING TWIN TOWERS OF THE FRENCH MISSION



IN THE BOTANICAL GARDENS, PENANG

Photos, Malay States Agency

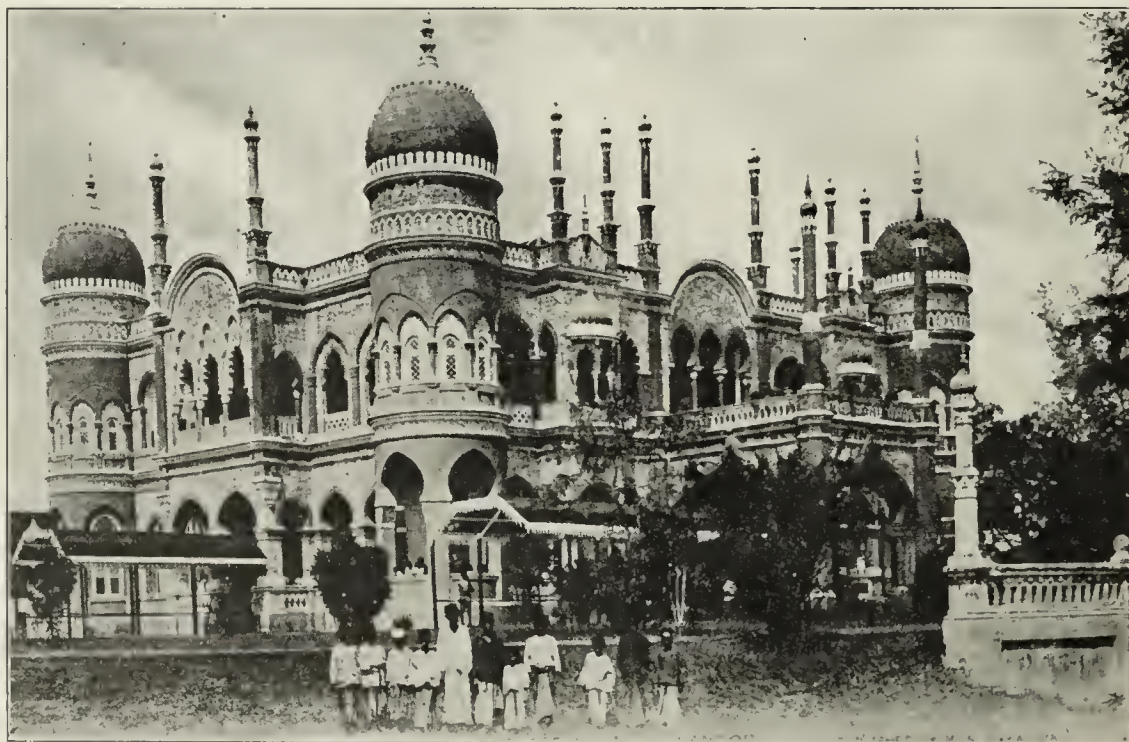
a part of the country not visible from the train or the roads. It is perfectly useless, however, to ascend except in bright and settled weather, and then only a morning ascent is recommended, starting not later than eight o'clock.

KANGSAR.

From Taiping to Kuala Kangsar, the railway and trunk road run through beautiful scenery, emerging from the mining plain at Ayer Kuning and climbing to a pass over the hills. Though the views from the rail-

from the train as it emerges from a tunnel. The line and the road run under the foot of Gunong Pondok, past the padi swamps, and beyond these rises that strange, tree-clad limestone rock, 2,000 feet high, dwarfing everything round it. Limestone rocks are frequent throughout the Peninsula. They are full of caves, the haunts of innumerable bats. They are also the refuge of wild goat or serau, the curious goat-antelope, one of the most difficult of animals to approach.

The town of Kuala Kangsar lies on the right bank of the Perak River. It is the seat



Photo, Malay States Agency

PALACE OF HIS HIGHNESS THE SULTAN OF SELANGOR, AT KLANG

way, which rises to the greater altitude, are beautiful and more extended, the road offers better scenery, for until it begins to mount the pass, it runs through rice-fields and groves of coco-nut palms, one fair scene opening out as another is lost in a perpetual variety of distance, light and topographical features.

At Bukit Gantang, the sportsman in search of game may be fortunate enough to bag a tiger, the district being still liable to the depredations of these beasts of prey. A fine view of Gunong Pondok, and of the valley of the Perak River beyond it, is obtained

of His Highness the Sultan. On the raised ground above the town are the houses of the British officials, the Government offices, the Art School (well worth a visit, for silver and other pretty work is made there by Malays and is on sale), the mosque, the school, and the three palaces of the Sultan. Boat trips may be made on the Perak River, varied by trips on shore, and, in the season (October to March), snipe and teal may be shot on the journey from Kuala Kangsar to Teluk Anson. The river banks are inhabited most of the way, and it is in the rice-fields that the snipe are to be found. Teal are found in



NATIVE CRAFT ON THE PAHANG RIVER, NEAR KUALA LIPIS



MOUNTING ELEPHANTS FOR TRANSPORT INTO THE JUNGLE

Photos. Malay States Agency

the water-holes away from the river, and in the tidal waters there are frequent opportunities of bagging crocodiles.

Arrived at Teluk Anson, the traveller is again on the railway and at a port, and so may go by sea to Port Swettenham, Port Dickson, Singapore, Malacca or Penang. But, as he is hardly half-way down the Peninsula, his best plan is to return by rail to Batu Gajah, a pretty little village, headquarters of the Kinta district, or to the town of Ipoh.

IPOH.

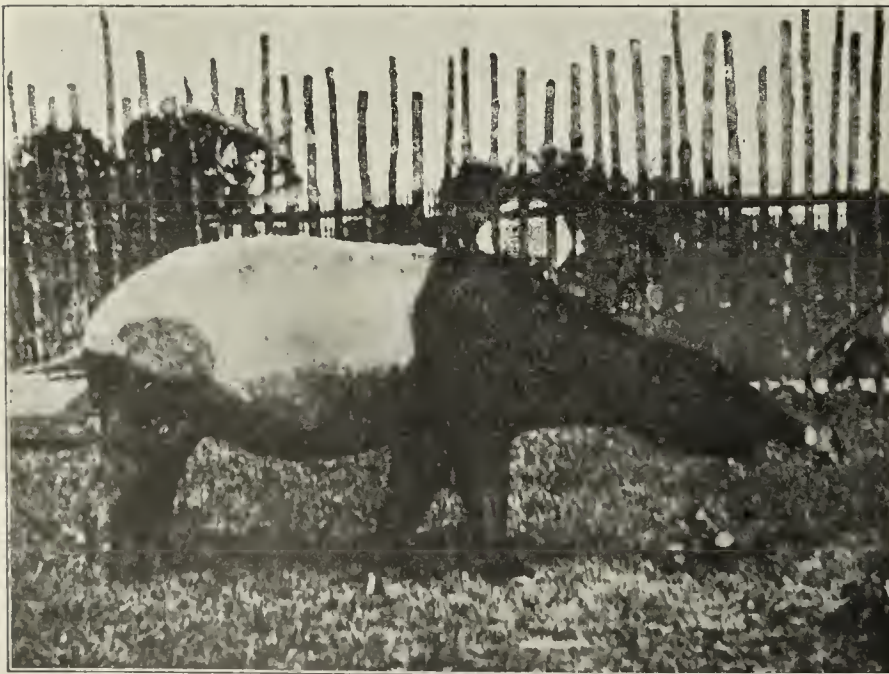
This is a convenient half-way house between Penang and Kuala Lumpur. It has grown up on the tin industry in the middle of the Kinta Valley. The valley is practically one huge tin mine, and Ipoh is

WILD ELEPHANTS, KUBU

its commercial centre, a modern town of great interest to anyone who wishes to see mining methods. With Ipoh as a centre, the visitor, aided by a few introductions, will be in a position to inspect all the many methods of alluvial tin mining

carried on in Malaya, from the modest operations to hydraulicing and dredging. In itself, the town, with its fine market, its people's park, its recreation ground, its commodious shop buildings and general air of active prosperity, is a good instance of what can be done in Malaya in creating a healthy, well-planned town.

A considerable percentage of the world's supply of tin comes from the Federated Malay States. The average annual production is about 46,800 tons.



MALAYAN TAPIR

Photos, Malay States Agency



STATION ROAD, IPOH
A centre of the Tin Mining Industry

Photo, Malay States Agency

STATE OF PAHANG.

At this point it may be convenient to refer, in passing, to Pahang. This State has a population of about 160,000, which is somewhat lost in 14,000 square miles of territory. These statements will hardly commend Pahang to the traveller, who has three other States from which to choose, nor is it intended that they should. For, indeed, except for wild magnificence of jungle scenery along the road which climbs the hills from Kuala Kubu to Kuala Lipis, and the charm of scenery along the Pahang River from Kuala Lipis to Pekan, there is little to be seen in Pahang, unless it is intended to enter her forests in pursuit of the big game which roams there unmolested. Kuala Lipis is the official capital; and Pekan, on the east coast, the Malay capital, where the Sultan resides.

STATE OF SELANGOR.

Unless the traveller proposes to go into Pahang he will go direct from Ipoh to Kuala Lumpur, the Federal Capital. Between Tapah Road and Tanjong Malim the railway and road run through over 40 miles of jungle, and this is the first section on the line where the obsession of the forest begins to pervade the mind. The Trolak forest reserve, which

bounds the railway half way to Tanjong Malim, is full of getah taban trees, the source of the gutta-percha of commerce.

In the short distance between Tanjong Malim and Kuala Lumpur there is a remarkable variety of scenery—bamboo jungle, sprung up where the virgin forest has been cut down, abandoned mining land, existing open-cast mines, hydraulic mines shooting water at red hillsides, rubber estates in all stages of cultivation, occasional Malay kampongs, little brick-built towns, each with its railway station. The prettiest of these townships is Kuala Kubu.

The area of Selangor is only some 3,200 square miles—about half the size of Perak. Its activities are all close together, and town succeeds town along the line of the road and of the railway with a greater frequency than in Perak. But they are all mining towns, and will not delay the sight-seeing traveller whose train glides into Kuala Lumpur at dusk.

In 1872, the Capitan China paid cash down for the heads of his enemies in the marketplace of the two-streeted Chinese town of Kuala Lumpur. To-day it is a garden city, the administrative capital of the Federated Malay States, a busy town full of varied races.



KUALA LUMPUR, CAPITAL OF THE FEDERATED MALAY STATES

Photo, Malay States Agency



SAKI WITH SPRING-TRAP FOR TIGERS

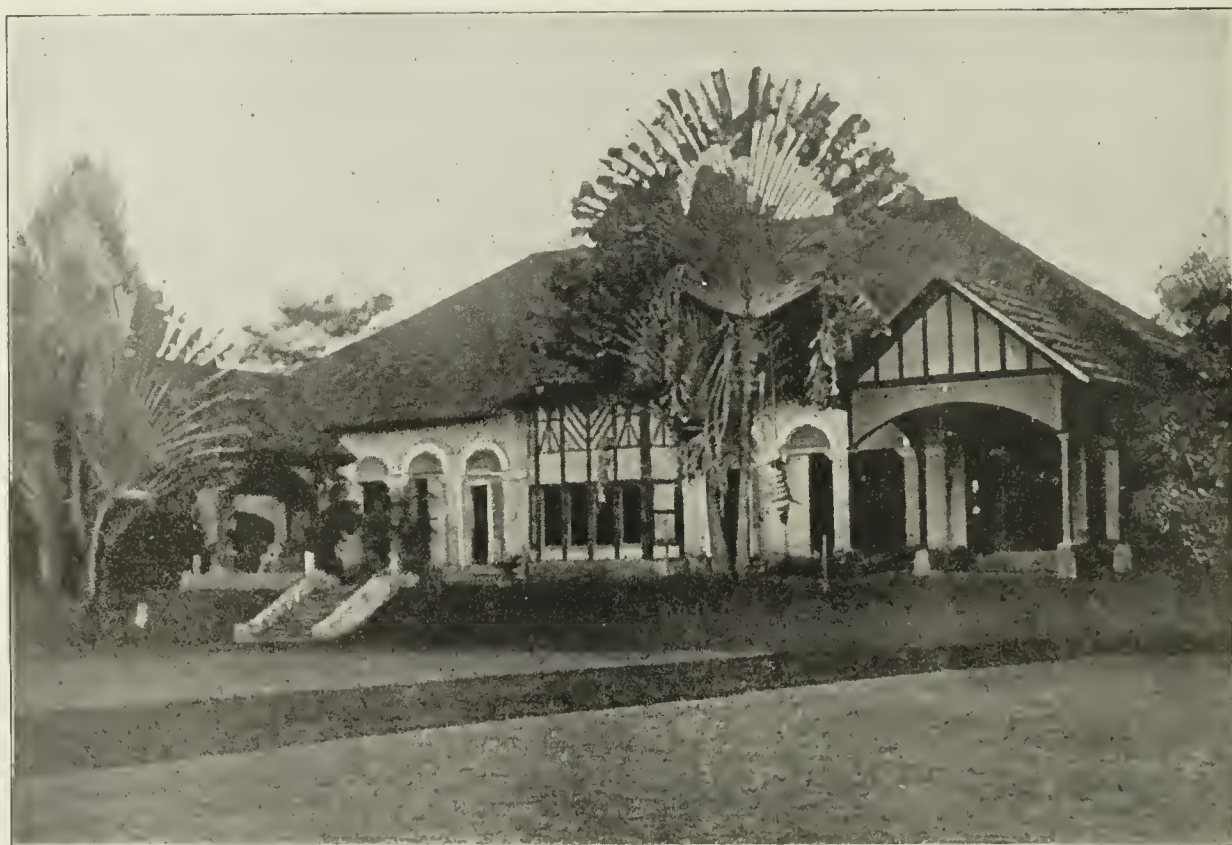


A BABY MALAYAN TIGER

THE FEDERAL CAPITAL.

Kuala Lumpur has grown in importance since the federating of the four States in 1897, when it became the administrative capital. A few years later, when the wonderful possibilities of rubber-growing were realised, and coffee estates, both near the town itself and in the Klang district, were planted with rubber, the sudden large interest in this form of cultivation and the consequent increase in the European population of the State of

pean clubs, two hotels, a large rest-house, beautiful public gardens, cricket and football grounds, fine roads, good shops, English society, and an equable climate. If it were less than its twenty-four days from England, people would go to winter in Kuala Lumpur. As it is, many people, usually relatives of those whose business stations them there, spend month after month lingering in it, doing, with complete satisfaction, nothing in particular in a strange land, or at least



LAKE CLUB, KUALA LUMPUR

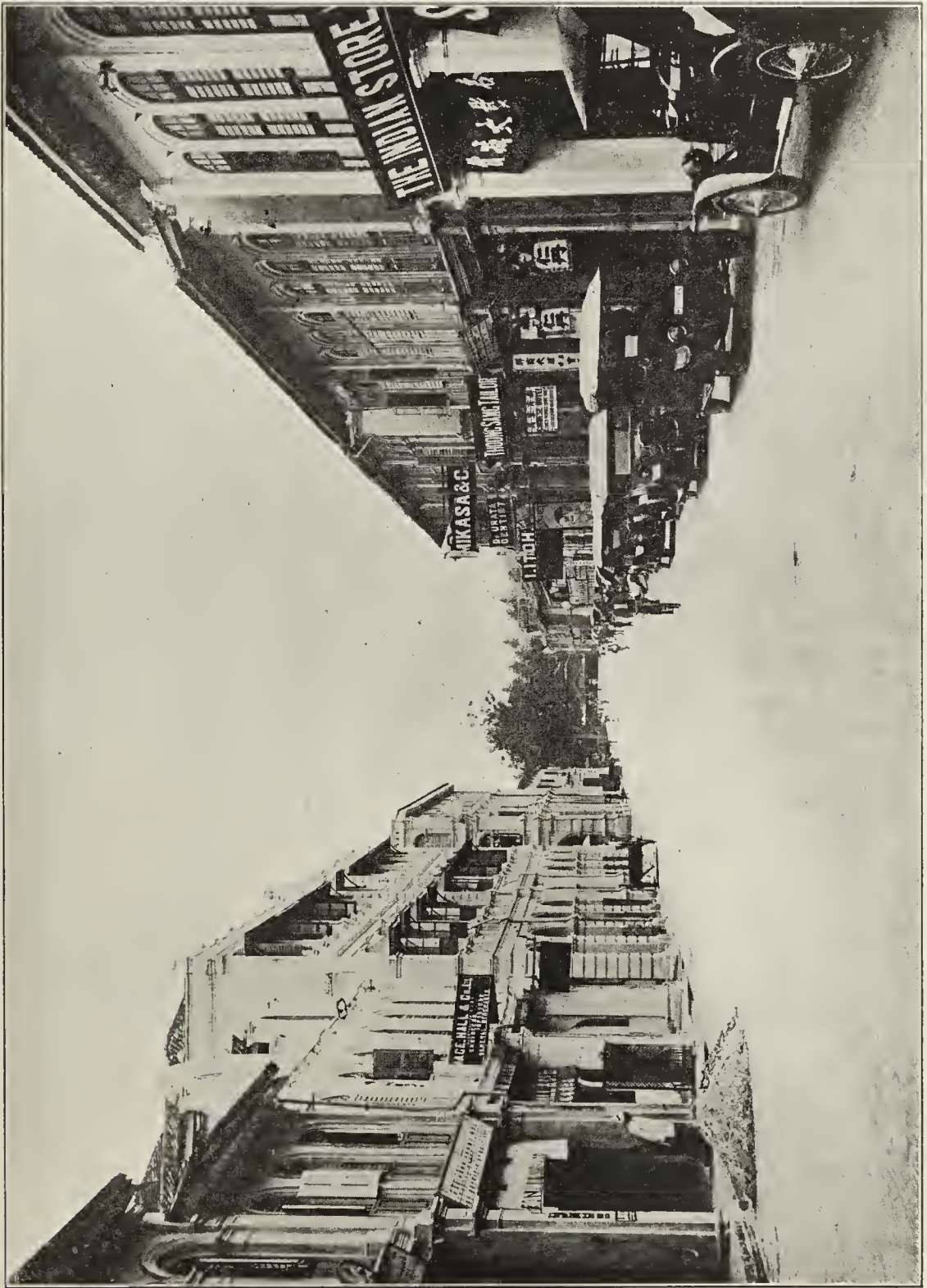
Photo, Malay States Agency

Selangor gave an impetus to Kuala Lumpur.

Long-vanished tapioca plantations, tin-mining and wood-cutting, have accounted for the disappearance of the jungle near Kuala Lumpur. It has no "hot" season; no cold, damp, drizzling weather; and it does not require the European and the Asiatic to live side by side. To these negatively-expressed advantages may be added the positives—that it is lit by electric light, it is within twelve hours by rail of Singapore, possesses an excellent racecourse, two golf courses, a polo-ground, two Euro-

nothing they could not do in England. Tennis, golf, cricket have their daily devotees; polo may be watched by the less active, while the training of racehorses on the course has always its following of interested spectators.

The gardens and lake—a prominent feature of Kuala Lumpur—are about half a mile from the railway station. Just before the gates stands the Museum—well worthy of a visit. But the whole of the European quarter of Kuala Lumpur is one garden, with red laterite roads in every direction, contouring



Photo, Malay States Agency

KUALA LUMPUR, ONE OF THE BUSINESS THOROUGHFARES

the hills and continually offering at every turn fresh scenes of that restrained but still tropical beauty which results from successful effort to preserve only some of the jungle and keep the rest of the ground for green lawns and shady paths. The impression left on the mind of the traveller is of perpetual freshness, verdure and colour, of bright lights and scented breezes, and of a spacious picturesqueness very pleasing to the eye.

ON A RUBBER PLANTATION.

Though much of interest may be seen with Kuala Lumpur as headquarters, yet anyone wishing to see a great stretch of rubber estates must take the train—a little over an hour's run—to Klang, or else motor down by road. At Klang is the palace of the Sultan of Selangor. From north of the village of Kuala Selangor to south of the town of Klang runs one long belt of rubber estates. Klang has for many years been a great district for planting, and at one time produced quantities of coffee.

Armed with the necessary introductions, the traveller should not fail to visit a rubber estate. The routine followed in the cultivation of the rubber tree, the extraction of the latex—the rubber-producing fluid—and the manufacture therefrom of the raw rubber of commerce is an interesting process. A night spent at a planter's bungalow will give a good insight into the life of the tropical agriculturist. Rising before daylight, he will attend muster and see the labourers detailed to their respective duties. A hurried breakfast, and then the inspection begins of the tapping process, the collection of the latex in vats, its coagulation at the store, the washing and preparation of the crepe, sheet and block



CHINESE RICKSHAW

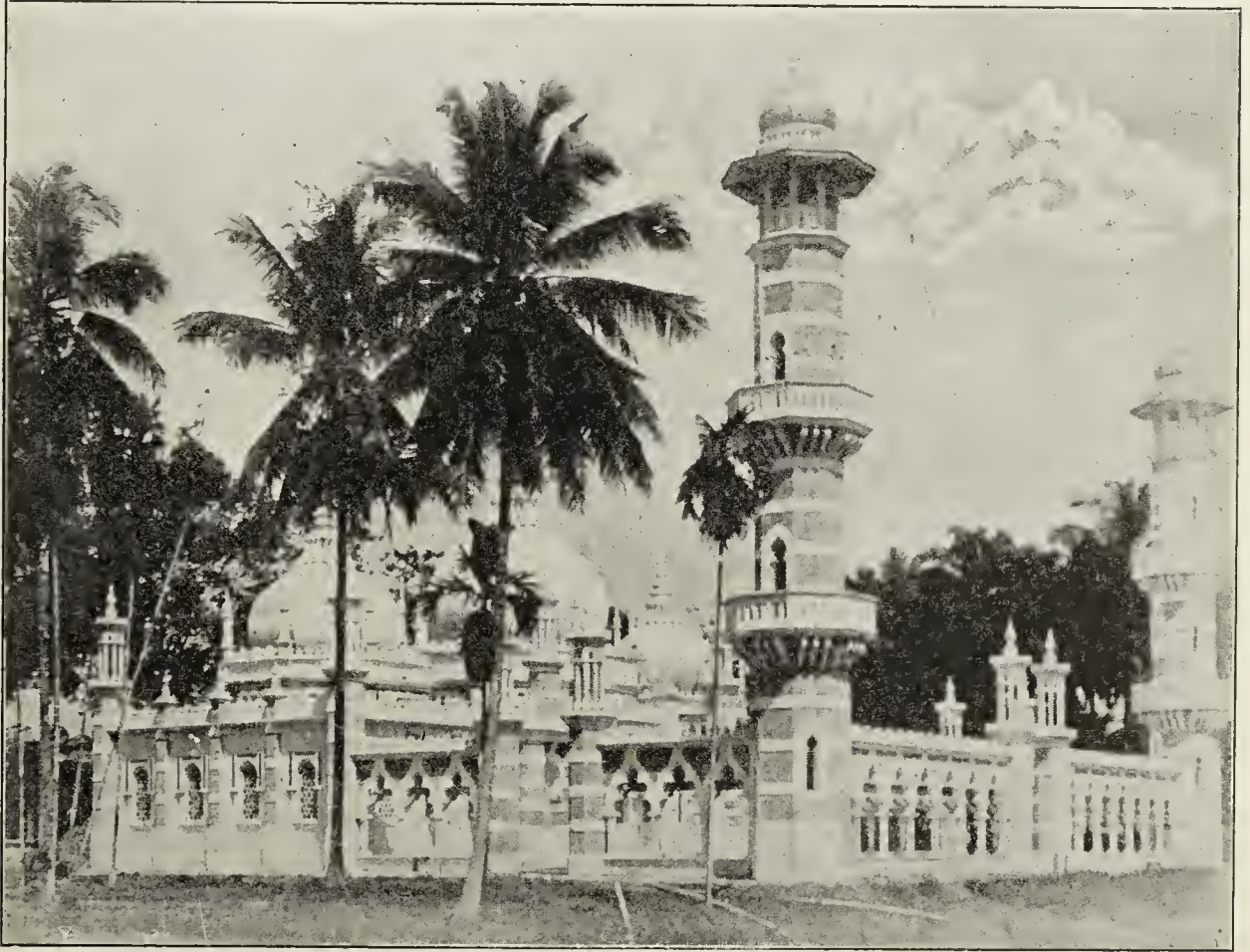
Photo, Malay States Agency

rubber, the drying process, and the final packing of the finished article in specially prepared boxes for exportation to the European auction rooms.

PORT SWETTENHAM.

Kuala Langat, the principal village of which is Jugra, is an agricultural district with a sparse Malay population and a number of rubber estates. On the railway beyond Klang is Port Swettenham, a world-port, with an annual trade of some £5,000,000 sterling. The P. & O. intermediate steamers and other liners call and load thousands of boxes of rubber from the estates. It is a fine natural harbour, whose advantages have been better realised since it was surveyed by the Admiralty.

An hour from Kuala Lumpur, resuming the southern journey, the train stops at the pretty town of Kajang, a centre for rubber estates and the headquarters of a considerable tin-mining district. The main trunk road also passes through it.



MOHAMMEDAN MOSQUE, KUALA LUMPUR

STATE OF NEGRI SEMBILAN.

The train now bears us away to Seremban, the capital of the State of Negri Sembilan. Seremban town reminds one of Kuala Lumpur, for its European quarter is spread out upon hills and lies amid gardens. Its population, however, is smaller, its public buildings are less spacious and ornate, and it suffers somewhat from comparison with Kuala Lumpur only a couple of hours away by rail. It is the junction for Port Dickson, a health resort in a modest way, situated on one of the rare sand beaches of the west coast. Port Dickson is certainly as pretty as a similar beauty spot, Mount Lavinia, near Colombo.

Soon after leaving Seremban the line passes between the two high walls of the forest of Johore. Tampin is the junction, whether by road or rail, for Malacca, a point of more than ordinary interest in the Malay Peninsula,

for here the Portuguese, in their quest for the Spice Islands, established themselves under Albuquerque, the great Viceroy, to be driven out by the Dutch, when the men of the Netherlands ruled the seas, themselves superseded by the British, who have brought peace and prosperity to a rich and vexed Peninsula.

The independent native State of Johore, through which the train runs on the final stage of its journey to Singapore, is mostly covered with dense tropical forests, and the towns and villages are all of native construction and have no European residents. At Johor Bharu, the capital of this State, the railway on the mainland ends; and an artificial causeway carries the train across to Singapore island, for the short run through fertile acres to the Administrative headquarters of the whole of British Malaya.

The Rubber Industry

So important are the rubber plantations of Malaya, not only to the States themselves, but also to the Empire as a whole, that it is advisable to give here a more or less detailed account of this great industry.

Rubber is the chief agricultural product of the Malay Peninsula. What sugar and coffee are to Java, tobacco to Sumatra, rice to Siam and Burma, and tea to Assam and Ceylon, rubber is to British Malaya, and although, doubtless, other forms of tropical cultivation will receive attention as time goes on, rubber is likely to retain its pre-eminence for many years to come, for experience has shown that there is practically no limit to the commercial uses for which rubber may be employed; and the steadily increasing demands of manufacturers for the cultivated product is the best indication that could be given that the better qualities supplied by the plantations are equal to the wild rubber which was formerly the main staple of the world's markets. Copra is the second of the staple products of Malaya. Then comes tin and rice.

Excluding the capital value of small native holdings, which must be very considerable, it is computed that no less a sum than £150,000,000 sterling is invested in rubber companies owning estates in the Middle East. In British Malaya alone, the estimated amount raised by rubber companies, or financial concerns interested in the production of cultivated rubber, is placed at over £75,000,000, while the area actually planted in the Peninsula is about 2,225,000 acres. British Malaya supplies more than half of the world's requirements of cultivated rubber.

It will be interesting to learn something of the introduction of the Pará rubber tree (*Hevea brasiliensis*) into the Middle East and of the commercial history of rubber, as it has been set out by Mr. H. N. Ridley, C.M.G., F.R.S., formerly Director of the Botanic Gardens, Singapore. Rubber is one of the comparatively few natural products in universal use; that is to say, it is a substance used by almost everyone in civilisation to-day, as are wheat, cotton, tea and coffee.

Till the year 1898, practically the whole of the Caoutchouc of trade was derived from



THE DURIAN MARKET, SEREMBAN, CAPITAL OF THE STATE OF NEGRI SEMBILAN



Photo Malay States Agency

PORT SWETTENHAM

wild trees or vines of the tropical forests, chiefly of America and Africa, and was collected by natives for export to Europe. The idea of cultivating the plants for profit was ridiculed at first by almost everyone; yet in a dozen years it produced a sensational boom only equalled by the boom caused by the invention of railways. As already stated, upwards of one hundred and fifty millions sterling are invested in its cultivation and marketing. Immense areas of dense

cities of the Gulf of Mexico used to pay large quantities of rubber to the Aztecs as tribute. This was, doubtless, the Panama rubber *Castilloa*, but later these natives discovered the Pará rubber. It was used chiefly for balls, and also for bottles, tubs and syringes.

In 1536 the Spanish invaders became acquainted with it, and the missionaries, following later, utilised it for the manufacture of shoes and waterproof cloth.



Photo, Malay States Agency

BURNING OFF JUNGLE PREPARATORY TO PLANTING RUBBER TREES

forests have been converted into flourishing and profitable plantations, and a vast army of Europeans, Tamils, Malays, Chinese and Javanese is employed in cultivating the land, and in preparing the rubber for export. This sudden development has also brought about a remarkable progress in the science of tropical agriculture affecting the whole of the previous theories and practice of planting and estate management.

Rubber (or Caoutchouc) was well known to the South American Indians before the discovery of America by Columbus. The

La Condamine, the naturalist, gave the first account of the plant and its products in 1736, the former under the name of He've (whence Hevea), the latter as Cahuchu. The substance began to attract attention in Europe at the end of the eighteenth century, but little advance was made in the study till 1820. In 1770 Priestley pointed out its use in effacing pencil marks, and it was sold in stationers' shops for this purpose under the name of india-rubber, at the price of 7s. 6d. an inch cube.



Photo, Malay States Agency

CARTS CONVEYING THE RUBBER LATEX FROM THE TREES TO THE FACTORY

Thomas Hancock, in 1820, took out his first patent for the use of Caoutchouc in articles of dress. The strips of rubber used were cut from the imported blocks, and this entailed a good deal of waste, so by dint of persevering experiments he invented a machine known later as the masticator, and also the washing machine, of which those in use to-day are modifications. In 1823 Charles Macintosh, of Glasgow, obtained a patent for rendering two fabrics waterproof by uniting them with a solution of rubber in coal-naphtha. These cloths were called "waterproof double textures," but soon afterwards came to be known as "Macintoshes," as they are till this day. However, it was found that extremes of heat and cold soon destroyed the articles made of rubber; but Charles Goodyear, after years of experiment, discovered, in 1839, that a combination of rubber with sulphur submitted to heat remained flexible and unaltered in high and low temperatures. In 1842 Hancock obtained from America, where Goodyear

was working, some small scraps of this prepared rubber, and after many experiments discovered the art of combining sulphur and rubber by means of masticators and rollers, and to this process he gave the name of "Vulcanisation." This was the first really important discovery since the actual introduction by the Spaniards, as it at last made rubber of practical value. From this time onward the improvements in manufacture and the uses of the substance rapidly increased, and rubber took its place as one of the most important and valuable vegetable products of the world.

After Hancock's discovery of the art of vulcanisation, rubber began to take an extremely important position in the market, and its use has increased to the present day to so large an extent that it would be impossible in these pages to give a list of the articles partly or wholly made of it. As the demand increased, owing to the rapid development of the electrical and motoring industries, all tropical or warm regions were

explored for fresh supplies, and upwards of 100 kinds of plants were found to give rubber of greater or less value. In South America were the *Heveas*, *Castilloa*, *Ceara* (*Manihot*), and *Mangabeira* (*Hancornia*); in Africa, *Landolphia* and *Funtumia*; in Asia, *Ficus elastica*, the *Willughbeia* and *Urccola* vines, and many of less value.

For many years the whole rubber supply was derived from wild plants, the natives penetrating the forests and taking the rubber where they could find it. In most cases, the trees and vines were destroyed in collecting the rubber, and it was necessary for the rubber gatherers to push farther and farther into the forests in search of it. This, naturally, greatly increased the cost of the product, as the distance it had to be conveyed became longer, and in many cases the collection and transport to the ports was so expensive that no margin of profit was left in the trade. Some of the South American rubber has to be transported, by land or river, over 3,000 miles before reaching the port of shipment, and it takes as much as a year to reach the manufacturer in Europe. It became clear that a time was coming when all the accessible supplies would be exhausted, and the price of the commodity would eventually become almost prohibitive, at least for articles of ordinary use.

So far, the general history of rubber by Mr. Ridley. It is at this point that an element of romance enters into the story.

The credit of initiating the cultivation of rubber in British territory belongs to the late Marquess of Salisbury, then Secretary of State for India. With the object of obtaining seeds or plants for the purpose of introducing the industry into India, Lord Salisbury communicated with Sir Joseph Hooker, the Director of Kew Gardens. Taking up the matter with enthusiasm, this sagacious official proceeded to make the arrangements to put the project into effect. The British Government authorised the despatch of an expedition to the Amazons to procure seeds and plants for cultivation in India, and, in 1873, Mr. James Collins (afterwards Government Botanist at Singapore) went to Brazil and obtained some hundreds of seeds of Pará rubber. On his return, Mr. Collins published a description of the method of collecting and preparing the rubber as practised in the Amazons.

From the seed sent by him about a dozen plants were raised at Kew. Six were sent to Calcutta; but they died, the climate, apparently, not suiting them.

Mr. H. A. Wickham (later Sir Henry), a traveller and planter in Central America, received an open commission from the Kew authorities to obtain a consignment of seeds and bring them to England. The commission was a welcome one. But it was another thing to carry it out successfully. He was puzzling as to how the work was to be accomplished, when he was surprised by news of the arrival on the great river of a fully-equipped ocean liner—the *Amazonas*. By a lucky chance, just at the right season, this large steamer was left stranded by her supercargoes without freight for the return voyage. This was Mr. Wickham's opportunity. Boldly chartering the steamer on behalf of the Government of India, he arranged with her commander to meet him at the junction of the Tapajos and Amazon Rivers. Starting for the forests in the highlands between the Tapajos and Madeira Rivers, where the finest of the true Pará rubber trees were to be found, taking with him as many Tapüyo Indians as he could get together on short notice, he daily ranged the forest, and packed on their backs in Indian pannier baskets as heavy loads of seed as they could carry. With great care some 70,000 seeds were collected and packed in native baskets, brought to the steamer and slung fore and aft in the empty forehold. It was necessary to call at Pará, where, thanks to the good offices of the British Consul, the steamer was allowed to proceed without delay. It had been feared that the Brazilian authorities would prohibit the export of the seeds. Favoured by fine weather, the captain was able to leave the hatchways open throughout the voyage, so that the seeds were preserved in the best condition. Wickham was landed at Havre, and from there hastened to Kew, saw Sir Joseph Hooker, and arranged for a night goods train to meet the *Amazonas* on arrival at the Liverpool docks, on June 14, 1876.

When it is mentioned that only 4 per cent. of the 70,000 seeds germinated when planted, it will be recognised how fortunate was the concatenation of circumstances which enabled Mr. Wickham to collect his seeds and transport them to the steamer, to find a



Photo, Malay States Agency
IN THE WORKINGS OF AN OPEN-CAST TIN MINE

vessel at his disposal, and to preserve the seeds in good condition between Brazil and Kew.

From the Brazilian consignment of seeds about 2,800 plants were reared at Kew. It was now decided to utilise the Botanic Gardens at Peradeniya, in Ceylon, as a depôt for the plants, spreading the cultivation of the tree over all the British Colonies where it was thought it would thrive. Of the plants reared at Kew a consignment consisting of 1,919 plants was sent to Ceylon in 38 Wardian cases, in charge of a gardener, and 90 per cent. reached Ceylon in excellent condition. Of these, 50 plants were despatched in August, 1876, to the newly-founded Botanic Gardens at Singapore, but all perished on the voyage. In the following year, however, two more cases of plants were sent to the Botanic Gardens, Singapore, from which a number were sent to Sir Hugh Low, then British Resident in Perak, which had come under British protection a few years earlier. Seven plants arrived safely at Kuala Kangsar, and were planted under Sir Hugh's directions in the garden of the Residency. These were the first Pará rubber trees planted in the Peninsula, and we find in his annual report for 1882 Sir Hugh Low's statement that "seeds and plants of *Hevea brasiliensis* have been distributed to Java and Singapore, to Ceylon and to India."

These trees and their descendants continued to thrive, and together with trees which were subsequently reared successfully at Singapore, became the nucleus of the rubber industry, as we know it to-day in the Malay Peninsula and the Middle East.

HARVESTING RUBBER.

While it is beyond the scope of this article to describe the various stages in the formation of a rubber plantation, or the highly scientific work entailed in the successful management of an estate, it may be said that the harvesting of the crop is carried out by coolies.

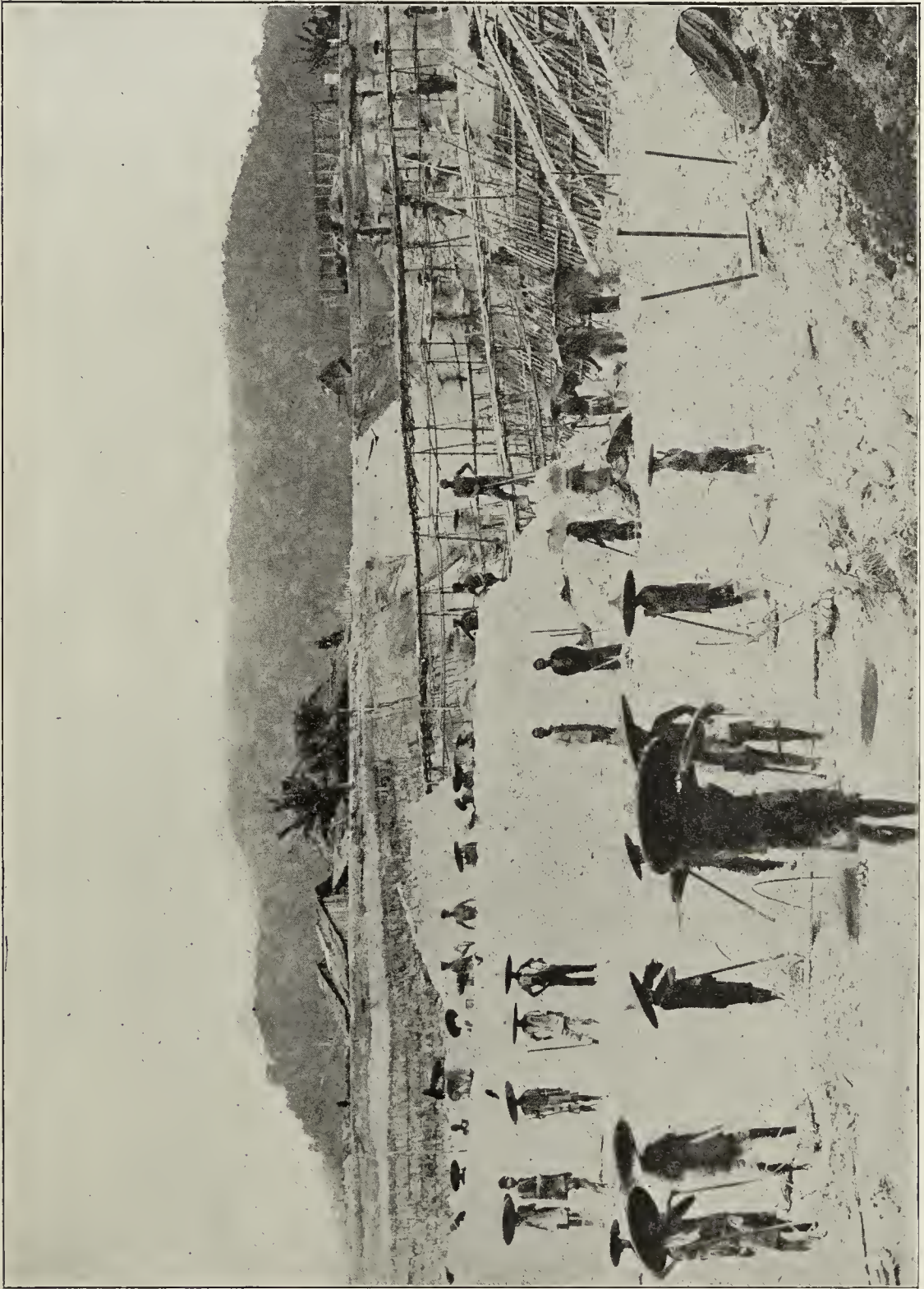
The majority of the estates employ imported Tamil labour, though Chinese find favour on some estates. Javanese and Malays are employed to a small extent only. The usual system of payment is to give a day's pay for tapping a fixed number of trees, collecting the bark shavings and scrap

rubber, cleaning the latex cups, spouts and collecting buckets, and transporting the latex by hand to the "store" or central factory building where the rubber is prepared. An average task for an individual coolie embraces 300 to 400 trees, and recent practice has shown that it is a sound proposition to pay the wage on the weight of rubber brought to the "store." Various devices have been invented by planters for the rapid measurement by weight of the rubber contained in the volume of latex collected by each tapper.

PREPARATION AND MARKETING.

Since the catastrophic fall in the market price of rubber in 1920-21, and again in more recent years, it has been the rule to market only smoked sheet and pale crêpe. The older forms of plantation rubber known as "compo," "bark crêpe," "earth rubber," etc., have largely disappeared; for not only do present improved methods of estate practice tend to preclude their formation, but it has been against the financial interests of an estate to dispose of its exportable allowance by the sale of a low-grade rubber, rather than to obtain the higher prices commanded by the superior qualities. In this connection it is interesting to learn that a certain Chinese concern manufacturing vulcanised goods in Malaya, and depending for success on the utilisation of low grades of raw rubber, has found it impossible to purchase this inferior quality of raw material.

In the production of smoked sheet or pale crêpe the main object is to turn out a rubber likely to present the best appearance when it reaches the broker. The practice of smoking the undried and freshly coagulated rubber dates back to the earliest days of the industry, and may be regarded as the outcome of attempts to imitate the smoked Pará material prepared by the rubber-tappers up the Amazon. When the latex has been collected and bulked in the estate "store" or factory, it is the present practice to add dilution water until the total volume of water plus latex contains approximately 1½ lb. of dry rubber per gallon. This is coagulated by the addition of acetic acid (about 3 oz. of a 5 per cent. aqueous solution), and the whole is then stirred thoroughly in the large coagulating tanks. These are



Photo, Malay States Agency

A CHINESE TIN MINE IN THE MALAY STATES
Worked by hand labour only

usually about 9 to 12 inches deep, with a capacity of 100 gallons, and are constructed so that partitions can be arranged vertically to divide the contents of the tank into long strips. Thus, when the latex has been mixed with the coagulant, the partitions can be set in the tank and, after coagulation, which occupies a period from three to eight hours, the coagulum can be removed in pieces which are convenient for cutting and machining to sheets.

The exports of rubber from the Malay States amount to about 160,000 tons a year.

Tin Mining

To speak of mining in Malaya is to speak of tin-mining. There are other minerals mined, such as gold and coal, but tin-mining preponderates to such an extent that it almost completely holds the field. Similarly, when tin-mining is spoken of, it is assumed generally that mining in alluvium is implied, owing again to the fact that by far the greater part of the mining is, and has been, of that nature.

Conditions have altered very considerably since the inception of mining in Malaya. The gradual increase in the use of machinery, combined with its ever-increasing efficiency, has enabled the miner to tackle successfully deposits which, owing either to their depth, poverty of content, or wetness, could not be worked in the past at a profit. The introduction of machinery has, however, been gradual, and little or no attempt has been made in the past to supply power to mining localities through central power-stations. There are several reasons for this, such as the temporary nature of a great number of the Chinese mines, and the consequent uncertainty of the continuance of the demand for power.

As the richer and more easily worked deposits are becoming worked out, greater care has to be taken to mine efficiently and economically. The result of this is that the proportion of ore won by European methods as against Chinese methods is continually increasing.

The conditions above expressed call for mining on a large and comprehensive scale adequately capitalised in order that the ground may be mined cheaply and efficiently.

The occurrence of tin in the Malay Peninsula appears to have been known from very early days. There are more or less reliable records extant that Ptolemy was cognisant of these deposits at the time when the first Cornish tin-mines were being worked. That the Chinese have been working these deposits for several centuries is much more certain. Their records of the early part of the fifteenth century speak of tin being found in the mountains of Malacca, and that men were sent to look after the mining of it.

D'Albuquerque, the Portuguese conqueror of Malacca, mentions the suppression of the current Malay tin coinage in that settlement in favour of his own Portuguese tin coinage. Chinese records again mention tin as an article of export from Johore and Pahang. The Dutch in the seventeenth and eighteenth centuries endeavoured to keep a monopoly of the tin produced in Kedah and Perak.

Towards the end of the eighteenth century the annual output from Perak was estimated at 5,000 pikuls, which rose to 8,500 pikuls in Newbold's time. The bulk of this tin was won by Malays in Kinta and Batang Padang. Intan, in Upper Perak, has been producing tin ore for the last three hundred years at least. The discovery of the rich tin-fields of Larut, however, was the main cause of the exploitation of Malaya for tin, and the faction fights which took place there between the various clans of Chinese in the seventies led to British interference, and so eventually was evolved the present administration.

Although alluvial tin ore will probably be found almost everywhere in the Western Malay States, and in parts of Pahang, the deposits which contain payable quantities of ore will be found in most cases to be in the neighbourhood of the contact between the intrusive granite and the older rock. A mining map of the rich Kinta District, which is of limestone bordered by granite ranges, shows two stretches of mineral lands on either side, with a belt of agricultural land down the centre and on the limestone.

Formerly most of the work of removing the ground was done by Chinese labour, but nowadays machinery of all kinds has replaced hand labour to a large extent, though the Chinese remain the mainstay of the

industry on account of their skill, adaptability and hardworking habits.

The following figures show how machinery replaced coolie labour in the twenty years ending 1922 :—

	No. of Coolies.	H.P. of Machinery.	Output in Pikuls.
1902	174,780	5,000	793,963
1912	211,490	22,608	813,472
1922	82,195	59,278	592,806

The exhaustion of the richer deposits has brought about the gradual increase in labour-saving machinery of all kinds, and the tendency now is to mine on a large scale with cheap power, so that the mining of even very poor ground will become a profitable venture on account of the large amount of ground worked.

Large opencasts using cheap steam-electric power, bucket dredges capable of cutting over 100,000 cubic yards a month, and worked by steam or electricity, hydraulic mines using part of their power for cutting and part for developing electric power, suction dredges driven by the latest steam-

electric machinery are among the methods employed to mine on a large scale as economically as possible. The latest addition to these methods, and one that may well turn out to be as, or more, successful than the others, is the suction cutter dredge. This method is still under trial, but it is considered to have a good future before it. The average annual export of tin is approximately 46,000 tons.

The Coco-nut Industry

Coco-nut cultivation is one of the oldest of the agricultural industries in Malaya, and of the country's suitability for it no better evidence can be offered than the groves of vigorous old palms in some of the senior Settlements, where trees of sixty years and upward continue, with unfailing regularity, to bear heavy clusters of large nuts, and, moreover, show good promise of fulfilling their allotted span of fivescore years and more.

Copra was first shipped from the Straits to Europe about the year 1850, but it is said not to have become an important article of export till 1870.



TRANSPORTING TIN-ORE ON RAFTS

Photo, Malay States Agency



DRYING COPRA

Photo, Malay States Agency

In the light of modern requirements, however, the coco-nut industry may be said to be in its infancy. It is by no means in the experimental stage; indeed, as an industry it is certain and lasting, and with the enlightened methods now being adopted for the preparation of copra, the extraction of oil and the manufacture of fibre, it is bound to expand far beyond its present limits. In the past it has assured comfort and prosperity to millions of the human race; in the future, it is safe to predict, it will bring benefit to millions more. Nothing that grows on earth has so many uses for humanity as this wonderful coco-nut palm. To the natives it provides food and drink, and most of the necessities of life.

Gibbon, the historian, writing of the palm tree, adds that the Asiatic celebrated, either in verse or prose, the three hundred and sixty uses to which the trunk, the branches, the leaves, the juice and the fruit were skillfully applied. Of course, he refers to its use in the domestic economy of the native; but the value of the coco-nut has long been recognised by Europeans and Americans, and as time goes on we find it being put to

an increasing number of uses in the manufacturing world.

Coco-nut oil is utilised in the manufacture of nut butter or margarine, lard, soap, candles and other articles. It is used both as a lubricant and as an illuminant, for embrocation and for perfumery. The coir, or fibre, is used in the manufacture of rope, cordage, matting, brushes, felt and mattresses, and by an inexpensive dyeing process, the selected "bristles" from the fibre make a splendid substitute for horsehair for stuffing purposes. The kernel is used in confectionery, and the copra (or dried kernel), after the oil has been expressed from it, is made use of in the preparation of feeding stuffs for cattle, sheep and poultry, and is also an extremely valuable fertiliser. The oil is particularly suitable for making marine soap, which will lather in salt water. Coco-nut oil is saponified in heat with strong lye, but there is no "salting out"; a hard soap is formed, although the percentage of water is high.

Apart from all these uses in countries where the coco-nut palm is grown, the fruit of the tree is indispensable to the millions of



ON A COCO-NUT PLANTATION
A collection of "Toddy," or the fermented juice of a palm

Photo, Malay States Agency

natives, who for generations have relied upon it for food, drink, cooking oil and the other numerous household purposes. This native demand, of course, has to be satisfied before a single nut is sold to the foreign manufacturer, or other outsider, and, with such populations ever on the increase, particularly so in the Malay Peninsula, an excellent argument against the probability of over-production is offered.

The terms of his holding in most cases prevent the Malay from disposing of his plantation; therefore, if the foreign consumer of coco-nut oil is not content with less than half the Malayan output, with possible further shrinkages, coupled with famine prices, the only possible remedy lies in fresh planting.

Out of the hurricane belt, as is the Malay Peninsula, coco-nut cultivation is one of the safest forms of tropical agriculture, and the history of the palm makes this incontrovertible.

There is a popular belief that the coco-nut palm will grow only in regions near the sea,

but experience has shown that the palm flourishes and produces large crops of nuts in places as remote from the sea-shore as several hundred miles. A great point in favour of the Malay Peninsula is that it has a more extended seaboard than most tropical lands, having regard to its total area, so that if the salt sea air is essential to healthy palms, then the suitability of each of the Malay States for coco-nut growing is demonstrated in the following table of distances :—

Name of State.	Sea coast line in miles.	Remotest boundary from seashore in miles.
Perak - - -	100	90
Selangor - - -	120	50
Negri Sembilan - - -	40	70
Pahang - - -	120	150
Kelantan - - -	60	95
Trengganu - - -	130	50
Kedah - - -	60	45
Johore - - -	300	50



THE TRENGGANU RIVER

Photo, Malay States Agency



THE PALACE AND MILITARY GUARD OF H.H. THE SULTAN OF TRENGGANU



A RIVER SCENE IN THE STATE OF TRENGGANU

Photos, Malay States Agency

The total area under coco-nuts in the Federated Malay States is, approximately, 193,256 acres, made up as follows :—

	Acres.
Perak - - - - -	89,662
Selangor - - - - -	78,680
Negri Sembilan - - - - -	10,468
Pahang - - - - -	14,446

But the total under cultivation on estates of 100 acres and over is only about 70,868

that the average coolie picks about 400 to 500 nuts a day, whereas in the West Indies 1,000 nuts a day is an ordinary task. This remarkable difference in quantities is attributed to the different styles of climbing the tree adopted by the coolies, and the method by which they retain their hold. The Malayan method is by means of cut notches in the stem. Holding on by one hand, the picker has only one hand free for his work in the crown of the palm. The West Indian method is by means of a rope loop which encircles the stem and the picker, a gunny bag taking the strain, where the



THE MOSQUE, JOHORE

acres, so that it will be seen native holdings comprise about two-thirds of the total estimated area under coco-nuts. The value of the planting is estimated roughly at over £6,000,000. The export of copra from the Federated Malay States averages, approximately, 65,000 tons.

HARVESTING THE CROPS.

Nuts fall when ripe, and usually during the night, which is said to account for so few accidents to people on the plantations.

Climbing the tree for the collection of the fruit is one of the best methods of gathering. Past records in the Malay Peninsula show

rope rests in the small of the back. By this means a much more rapid ascent is made and both hands are free, not only for picking the nuts, but for the removal of dead leaves, moss, and lichen; the picker, too, is enabled to make a more thorough search for beetles and pests.

The practice of using a knife attached to a long pole for cutting down nuts is to be deprecated, for by this means insufficiently ripe nuts are brought away in the cut bunches. Old habits die hard, but the Malay, with his stem notching, and the Chinaman with his pole-knife, must be taught to appreciate the many advantages



RESIDENCE OF THE BRITISH ADVISER, JOHORE

Photo, Malay States Agency



NATIVES OF THE STATE OF KELANTAN

Photo, Malay States Agency

A CHINESE ROCK TEMPLE

the rope-loop system of climbing has over present Malayan methods.

Yields, of course, vary according to the cultivation. In the Malay Peninsula, the coco-nut palm is known to fruit in the fourth year; this is especially so with the dwarf variety. On the other hand, many of the palms may not flower till the seventh year, so that, to arrive at a fair average, the sixth year should be reckoned as the one on which returns can be based. It should be noted that the term "maturity," as generally applied to fruit-bearing trees, has a wider interpretation when associated with the coco-nut tree. For instance, though the latter does not arrive at maturity till about its thirtieth year, it has for the previous twenty years or so borne fruit. This is mentioned to correct a common idea that "bearing" and "maturity" are synonymous terms. Instances are common in the Malay Peninsula of full-grown trees bearing as many as 300 nuts, of which about half may mature. It would not be advisable, however, to take such figures as a basis upon which to calculate revenue.

The following is the generally adopted estimate :—

	Average nuts per tree, per annum.		
At the end of 6th year	-	-	10
" " 7th "	-	-	30
" " 8th "	-	-	40
Thereafter	-	-	50

Given reasonable cultivation, an average of 80 nuts per tree in the tenth year is readily obtainable, but for a conservative estimate it is deemed advisable, when calculating profits from a mature estate, to keep the maximum output per tree at 50 nuts. This allows a wide margin for unforeseen contingencies—drought in particular.

On native plantations, nuts are picked monthly, but on a properly organised estate there should be but five to six picking seasons in a year.

The husk is usually removed by hand, by bringing the whole fruit down on a sharpened

iron stake fixed upright in the ground and giving a dexterous twist to the fruit, and thus tearing the husk away. The shell is then cracked, usually in two parts, and the clear "water" or "milk" thrown away. The split nut is then exposed to the sun until the kernel or "meat" contracts, and can be easily removed from the shell. A curved knife has also been devised, and is used on some estates for removing the kernels from the shell immediately after cracking. The kernel or "meat" after drying is known as "copra."

The Native States of Malaya

The semi-independent native states, Johore Kelantan, Kedah, Trengganu, and Perlis, have not yet been brought under direct British administration, and are only partially exploited; nevertheless, they are under the suzerainty of the Empire, and in Johore there is a British official, known as the General Adviser, and in Kelantan, Kedah and Perlis, British officials designated as Advisers. These officials are members of the Federated Malay States Civil Service, and their advice is followed by the native rulers. To the Sultan of Trengganu an officer of the same service is accredited.

The area, population and capital of each of these states is as follows :—

State.	Area. Sq.m.	Pop. (Approx.)	Capital.
Johore	7,680	282,244	Johor Bharu
Kelantan	5,500	300,000	Kota Bharu
Kedah	3,790	339,000	Alor Star
Trengganu	6,000	167,000	Kuala Trengganu
Perlis	519	45,000	Kanga
Total	23,489	1,173,244	

Very large tracts of country in these States are covered with peculiarly dense forest, and to those who are fond of shooting they afford the following game: elephant, rhinoceros, seladang (*bos gaurus*), tiger, panther, sumbur and other deer, wild pig, crocodile, snipe, and many varieties of pigeon.

MALTA

SITUATED midway between Gibraltar and the island of Cyprus, and at equal distance between the former naval base and the entrance to the Suez Canal, the strategic position of Malta is alone sufficient to ensure it naval pre-eminence. To this geographical advantage, however, must be added those accruing from a magnificent harbour at Valetta, the capital, used by a large tonnage of shipping, fertile though thin soil in a fairly high state of cultivation, and an industrious population of 220,000 with shipping, lace-making and agriculture as their chief industries.

Malta, as a colony, includes the adjoining island of Gozo, with an area of about 25 square miles ; the centre of the Maltese lace industry ; and Comino, Filfla, Cominotto, and several other small islets of little commercial importance. Not only do these islands, which have a total area of 117 square miles, stand favourably on the highway from "Gib. to the Suez," but they are also situated only 38 miles from Sicily and less than 200 from the African coast, which makes Valetta a useful port of call for the trans-Mediterranean traffic.

ROMANTIC PAST.

Malta is the *point d'appui* of maritime supremacy in the Mediterranean. To write the full story of the romantic part this little island played for centuries in the early history of Europe would necessitate an account being given of the rise and fall of the great empires of the past, whose capitals and ports studded the shores of the Central Sea.

In remote ages Malta was occupied in turn by every nation who obtained maritime supremacy in the Mediterranean, and kept so long as they retained command of that sea. First came the Phœnicians, then the Greeks, the Carthaginians, and the Romans, under whom the island prospered. In the days of Nero, before the First Edict, Malta was flourishing as a Roman colony, its industries received an impetus, and its people were gaining strength in the new-born Christian religion, which made its first appearance among them at the time of St. Paul's shipwreck in 58 A.D.

With the decline of the Roman Empire Malta fell an easy prey to the Goths, the Vandals, and the Moors, who revived its industries, enslaved its people, and used it as a naval base for their piratical operations in the Mediterranean. It was not until 1090 that it again came under Christian rule ; being conquered about that date by a Norman Count of Sicily. For over 400 years Malta was the shuttlecock of many nations who gained and lost maritime power in the Mediterranean, until taken by Charles V, and ceded, in 1530, to the Knights of St. John, with whose glorious deeds in the days of the wars of the Cross and Crescent its name will be for ever associated.

IN THE DAYS OF CROSS AND CRESCENT.

Cursory mention alone is possible of the stirring times when Malta became the stronghold of the Christian Knights against the



Photo by kind permission of H. G. S. Trowbridge
PORTO REALE, VALETTA, MALTA

Turks and Corsairs. The island was converted, by the liberality of the members of the Order, into a great port, its cities were adorned with several magnificent buildings; and, in 1565, under La Valette, at that time Grand Master of the Knights of St. John, it withstood the last determined effort of the Turks to obliterate this stronghold of the infidels.

For over 200 years Malta remained in the hands of the Order, but gradually the members of this great Christian fighting union lost their earnestness, and their rule declined. With the meteoric rise of Napoleon, *the Master of War*, Malta came under the sway of France, but here Napoleon's dominion was but short-lived, for in 1800 the Maltese rose in rebellion and with the active co-operation of British and Neapolitan forces expelled the French garrison.

The island, or, more correctly, Malta and the adjacent islets, were finally ceded to

Great Britain in 1814 by the Treaty of Paris. It will have been seen that Malta has, since the dawn of written history, been the stronghold of every nation whose ships have obtained command of the Mediterranean Sea—the loss of which has always resulted in the loss of Malta—and from its cession in 1814 commences the career of this island as the headquarters of the British Mediterranean Squadron.

The government of the island, so far as Imperial affairs are concerned, is in the hands of a Governor and Commander-in-Chief, who is assisted by an Executive Council. Under the Constitution Act of 1920, however, all local affairs are in the hands of an elected Legislative Assembly with a responsible Ministry.

CLIMATE AND PEOPLE.

The climate of Malta, which is extremely hot, especially during the months of July



Photo by kind permission of H. G. S. Trowbridge
STRADA REALE, VALETTA, MALTA



GENERAL VIEW OF THE GRAND HARBOUR, MALTA

Photo by kind permission P. & O. Line



Photo by kind permission H. G. S. Trowbridge
A STREET, MALTA

and August, more closely resembles that of North-East Africa than that of the European coast of the Mediterranean ; as does also much of the flora ; but notwithstanding the fact that the island lies nearly an equal distance from both shores, it has been proclaimed "European territory." During the spring and summer the *Sirocco*, or south-easterly wind, coming from the Sahara, raises the temperature to 85–100 deg. F., and its effects are most enervating ; while in the cool season the temperature ranges from 50–65 deg. F. Storms from the north-east, known as the *Gregale*, are not infrequent, and the violent wind occasionally does considerable damage to property, even the "Grand Harbour" of Valetta is not thoroughly sheltered from them. Although the heat of the sun is often very great, the climate of Malta is not tropical, but residents are subject to a complaint known as "Malta Fever," which is, however, by no means deadly, and these islands may, otherwise, be considered healthy.

The population of Malta is curiously mixed ; representatives of all nations situated on, or near, the shores of the Mediterranean may be found in these islands. The well-to-do classes, which, besides the officers of the Government and garrison, mostly consist of a few families, descendants of those who settled in the island when it was under the Knights of St. John, the foreign consuls, merchants and shipping officials, all speak either English or Italian, or more often both ; while the Maltese themselves, who are of Punic origin, comprise the bulk of the industrial, agricultural, and shipping population, and speak a distorted form of Arabic.

VALETTA AND THE ISLAND.

About one-third of the entire population reside in Valetta, the capital, which is situated in a bay on the north-east coast of the island, and possesses a double harbour,



Photo by kind permission H. G. S. Trowbridge
OPERA HOUSE, VALETTA



STRADA ST. LUCIA (THE STREET OF STEPS), MALTA

one of the finest in the world, capable of sheltering, besides a considerable tonnage of merchant shipping, a large fleet of warships.

The city of Valetta stands on a promontory, at the extreme point of which is Fort St. Elmo, which, with Fort Ricasoli on the opposite shore, commands the entrance to the eastern or Grand Harbour, which is about a quarter of a mile broad at the mouth and extends inland for over two miles. On the eastern shore are the "Three Cities" of Cospicua, Senglea, and Vittoriosa; and the Grand Harbour is the headquarters of the British Mediterranean Squadron.

Valetta, with its picturesque suburb, Floriana, possesses many fine buildings and several of archaeological interest. It is not remarkable, however, for its spacious thoroughfares, nor for the beauty of its design, but there is a certain undefined air of quaint picturesqueness about its streets, its shops, and its people, which leaves a pleasant impression on the memory. Besides being a highly-important naval base, it has a bright military aspect, which is only observable in the largest garrison towns of the Empire. One of the most noticeable buildings is the Dragonera Palace, a glaring white building surrounded by Corinthian columns, and one of the most interesting thoroughfares is the Strada Reale.

On the north side of the city, which stands on the broken ground of the promontory between the two natural anchorages, lies the *Marsamuscelto*, or western harbour, which is mostly used by small vessels and those making use of the island as a temporary port-of-call. In the centre of this harbour is Larazetto Island. A sanitary station has, however, now been erected on Cominotto, one of the other small islands of the Maltese group. The average annual tonnage of shipping entering the two harbours is approximately 3,580,000 tons.

The rapid increase during recent years in the shipping requirements of Valetta, which provides occupation for the largest portion of the inhabitants, was one of the reasons for the great extension of harbour accommodation at Gibraltar, carried out some few years ago with the primary object of providing an additional port for the growing maritime commerce of the Mediterranean and an adequately equipped base for the British Atlantic Fleet.

Everywhere in Valetta there are relics of the days of chivalry. The magnificent Cathedral of St. John, the armoury of the old Knights, the Houses of the Orders, the battlements, ancient streets of steps, lace and curio shops, a University, and a fine seaside drive, are among the attractions of this historic island.

CITTA VECCHIA.

Citta Vecchia, the old capital of Malta, is situated in the centre of the island, some



Photo by kind permission H. G. S. Trevelbridge
ST. ANTONIO GARDENS

8 miles from the new fortified capital of Valetta, with which it is connected by railway. The ancient Palace of Justice, the Cathedral, the Seminary, and numerous other buildings give a decidedly old-world appearance to this quiet little town of 500 inhabitants, which has much that is Italian in its composition. Rabato, a suburb of Citta Vecchia, has a much larger population.



INTERIOR OF THE CATHEDRAL OF ST. JOHN

Official photo

The Church of the Order of St. John of Jerusalem. A unique monument of an International Order, great in its mission and in its history. The magnificent painted roof, the tapestries, the cartoons by Reubens, and the pavement of over 400 mosaic slabs, recording the flower of the chivalry of Europe in the middle ages, cause this Holy edifice to be one of the most awe-inspiring and superb monuments of Christianity

Malta, especially Valetta, with its two harbours, is very strongly fortified on fairly modern principles, and is armed with many guns of the latest pattern. Being situated within a few hundred miles of Palestine, and about 2,200 miles by sea nearer Somaliland, Zanzibar, British East, South, and Central Africa, than any port in the United Kingdom, its position is favourable for the maintenance of a large garrison of British troops, a considerable portion of which could, if required in an emergency, be quickly despatched to any of these British possessions and protectorates.

In addition to being geographically important, Malta is also commercially valuable, owing to its cultivated soil, its peaceful and industrious population and its special art products. Besides the famous lace, which is made by no less than 8,000 women, and the filagree gold and silver work, which gives employment to several hundred men, cotton, corn, fruit, onions and early potatoes are largely grown. The last two of these products are mostly shipped to the British Isles. (See *Commerce, Finance, Trade Routes*, etc.)

MANDATORY TERRITORIES

PALESTINE, IRAQ, TANGANYIKA SOUTH-WEST AFRICA,
TOGOLAND, CAMEROON, AND PACIFIC ISLANDS

THE territories conquered by the Allies during the Great European War, and finally ceded to them by Germany in Articles 118 to 158 of the Treaty of Peace, and by subsequent Treaties with Turkey, Austria and Bulgaria, are administered, according to the Covenant of the League of Nations (*q.v.*), by one or other of the Allied Powers under an entirely new political code, *i.e.*, by Mandates from the League of Nations.

The exact nature of this new form of Government and political ownership, which, as capital and labour are being expended in these territories, it is presumed must be permanent, can best be described here by giving the somewhat vague clauses in the Covenant referring thereto.

League of Nations

That part of the Covenant signed in 1919 which refers to the territories which passed from under enemy control during the Great European War is contained in Clause 22, and reads as follows :—"To those Colonies and territories which as a consequence of the late war have ceased to be under the sovereignty of the States which formerly governed them, and which are inhabited by peoples not yet able to stand by themselves under the strenuous conditions of the modern world, there should be applied the principle that

the well-being and development of such peoples form a sacred trust of civilisation, and that securities for the performance of this trust should be embodied in this Covenant.

"The best method of giving practical effect to this principle is that the tutelage of such peoples should be entrusted to advanced nations, who, by reason of their resources, their experience or their geographical position, can best undertake this responsibility, and who are willing to accept it, and that this tutelage should be exercised by them as mandatories on behalf of the League.

"The character of the mandate must differ according to the stage of the development of the people, the geographical situation of the territory, its economic conditions and other similar circumstances.

"Certain communities formerly belonging to the Turkish Empire have reached a stage of development where their existence as independent nations can be provisionally recognised, subject to the rendering of administrative advice and assistance by a Mandatory until such time as they are able to stand alone. The wishes of these communities must be a principal consideration in the selection of the Mandatory.

"Other peoples, especially those of Central Africa, are at such a stage that the Mandatory



THE FOURTH ASSEMBLY OF THE LEAGUE OF NATIONS
Photo by kind permission of the League of Nations

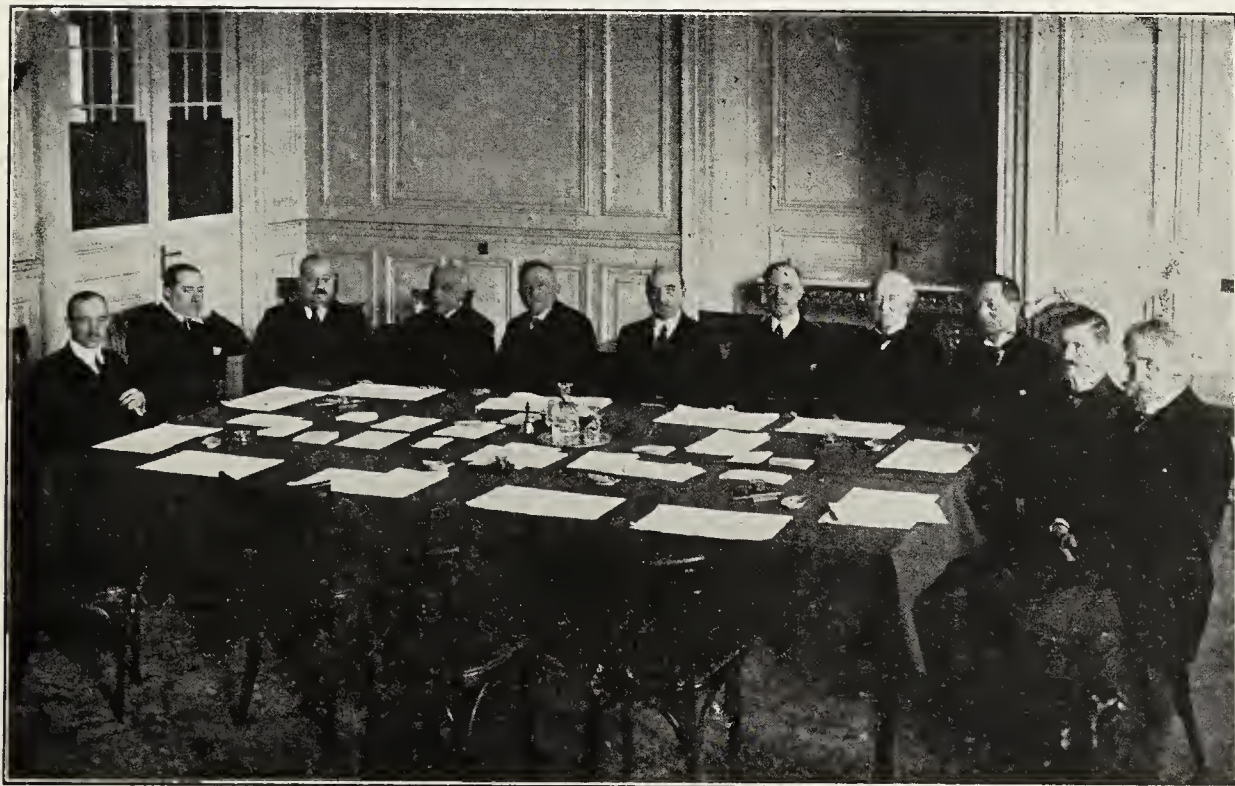


Photo by kind permission of the League of Nations

A COUNCIL OF THE LEAGUE OF NATIONS

must be responsible for the administration of the territory under conditions which will guarantee freedom of conscience and religion, subject only to the maintenance of public order and morals, the prohibition of abuses, such as the slave trade, the arms traffic and the liquor traffic, and the prevention of the establishment of fortifications or military and naval bases, and of military training of the natives for other than police purposes and the defence of territory, and will also secure equal opportunities for the trade and commerce of other members of the League.

"There are territories, such as South-West Africa and certain of the South Pacific Islands, which, owing to the sparseness of their population, or their small size, or their remoteness from the centre of civilisation, or their geographical contiguity to the

territory of the Mandatory, and other circumstances, can best be administered under the laws of the Mandatory as integral portions of its territory, subject to the safeguards above mentioned in the interests of the indigenous population.

"In every case of mandate, the Mandatory shall render to the Council an annual report in reference to the territory committed to its charge.

"The degree of authority, control or administration to be exercised by the Mandatory shall, if not previously agreed upon by members of the League, be explicitly defined in each case by the Council.

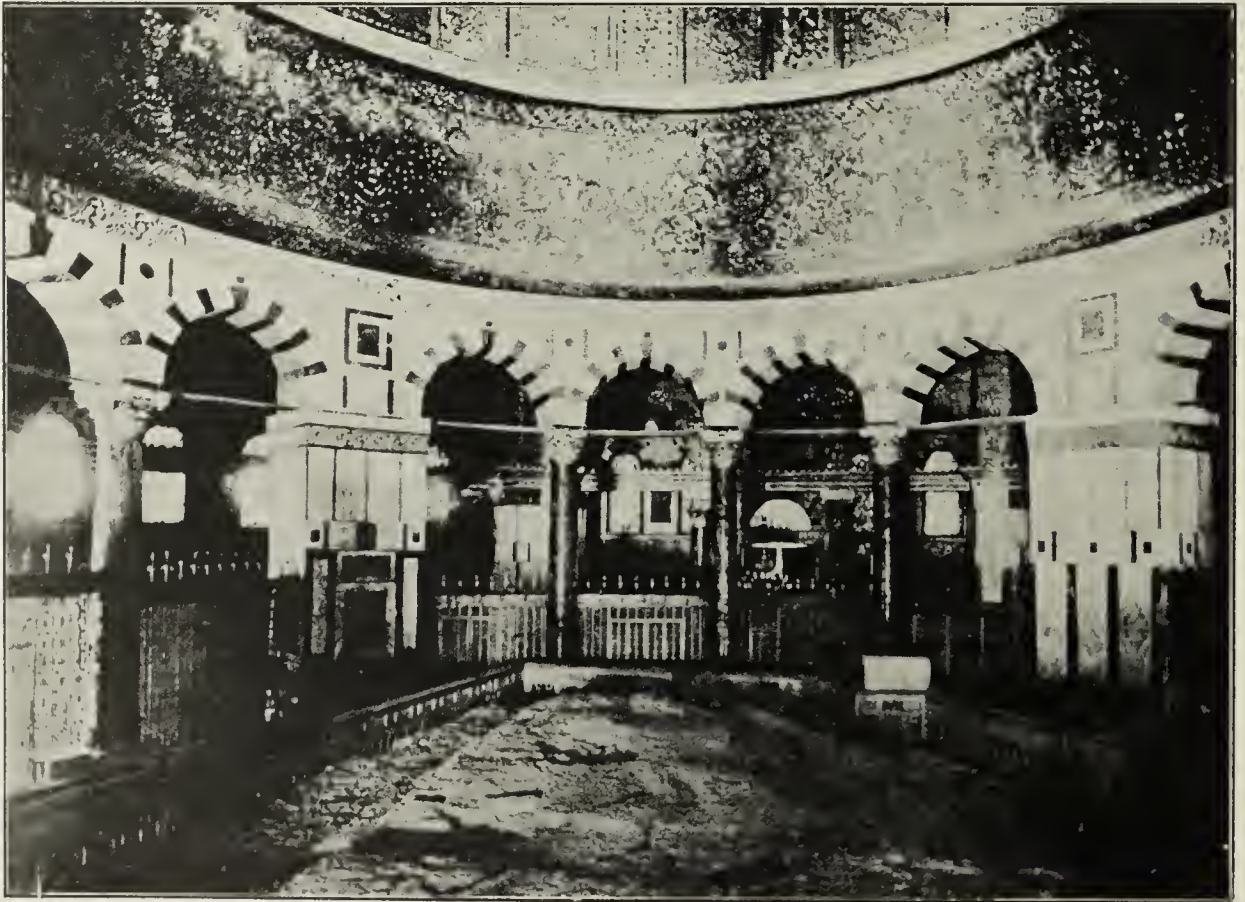
"A permanent Commission shall be constituted to receive and examine the annual reports of the Mandatories and to advise the Council on all matters relating to the observance of the mandates."

PALESTINE

THE ex-Turkish province of Jerusalem, to which had been added in 1906 the Kaza of Nazareth, as well as parts of the province of Syria, generally known as Palestine, was invaded by Field-Marshal Lord Allenby and his British and Arab Forces (under King of Hedjaz) early in 1917. On November 7th Gaza fell to British arms, and ten days later Jaffa was entered. Jerusalem was captured on December 9th, Jericho in

February of the following year, and Damascus in October, 1918. In this way the whole of Palestine, or the Holy Land, came under British or Allied control. (See also *War for Civilisation*).

The economic or geographical value of Palestine at the present time is of little account compared with its great historic and religious interest. It is therefore advisable to begin this article with a neces-



DOME OF THE ROCK (MT. MORIAH)] Photo, Vester & Co., Jerusalem
The threshing floor of Araunah, the Jebusite. The Place of the Ark



A CARPENTER OF JERUSALEM WORKING
WITH HIS HANDS AND FEET

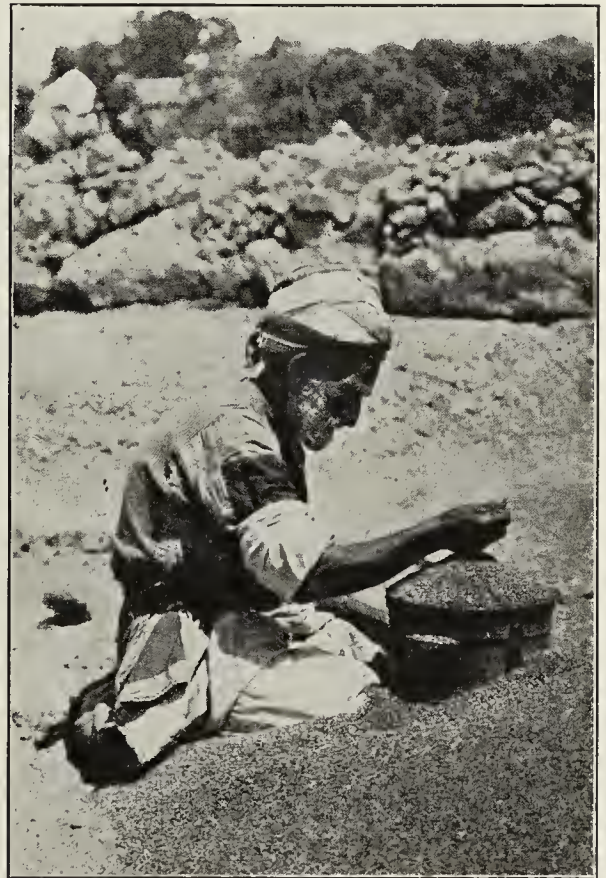
sarily brief survey of the changes and events of the past, which have given it a prominence quite out of keeping with its relative geographical, political and economic value among the territories and peoples of the modern world.

AT THE DAWN OF HISTORY.

The earliest name by which Palestine was known is the land of *Canaan*, derived from the descent of its inhabitants from Canaan, the fourth son of Ham, and a grandson of Noah. The word *Palestine* was first used by Greek authors, and came from the Hebrew *Pelescheth*, meaning the land of the Philistines. Both Josephus and Philo used this designation, and thereby added ancient authority for its modern use, although no such name occurs in Scripture.

It was, in this very dim and remote period of history, inhabited by various independent tribes, the best known of which were the Kenites, on the east of the River

Jordan; the Hittites, in the hills of the south; the Canaanites, along the central coast; the Philistines, in parts of the south; and the Phœnicians, on the northern coast. In the days of Moses, the land lying eastwards of the River Jordan was conquered and distributed among the various tribes of Rueben, Gad, and the half-tribe of Manasseh. The work of conquest was continued under Joshua, and the land to the west of the Jordan was divided between the remaining half-tribe of Manasseh and ten other tribes, among which were those of Benjamin and Judah, who received large areas in the south. Solomon completed the conquest, and included all the land within his own kingdom, but his son, Rehoboam, caused the land to be divided by civil war into the independent Kingdoms of Israel in the north and Judah in the south. The capital of Israel was Samaria, by which name the whole kingdom was sometimes known.



Photos, Vester & Co., Jerusalem
MEASURING CORN

"Pressed down, shaken together and running over"

Next came the Babylonian conquest, which carried away many of the old tribes into captivity, and peopled parts of the land afresh as a colony of the Babylonian Empire. With the fall of Babylon, the country succumbed to the Persians, and later to the Macedonians. With the rise of the Roman

THE OTTOMAN EMPIRE.

Rome fell through internal luxury and vice, and the empire of the Caesars changed hands. Under the Emperor Constantine—the next great Mediterranean power—Palestine first became known as the Holy Land, and gained rapidly in interest and prosperity.



Photo, Vestler & Co., Jerusalem

CHURCH OF THE HOLY SEPULCHRE

Empire, Palestine fell beneath the sway of the Caesars, and in the time of our Saviour it was split up into the provinces of Galilee in the north, Samaria in the centre, Judea in the south, and Perea, lying to the east of the Jordan.

The division of the Byzantine Empire into two independent kingdoms by Theodosius, in A.D. 396, caused Palestine to be allotted to the weak eastern kingdom, and it was in this helpless condition when Islamism began slowly to extend its influence. In

the year 636 Omar conquered the Holy Land, and converted it into a dependency of the Caliphate.

The Crusades were undertaken by the Christian nations of Europe because of the ill-treatment of the Christians in Palestine,

Palestine remained a province of Turkey for exactly 400 years, until liberated by General Lord Allenby and the British Forces, who entered Jerusalem on December 9th, 1917, and completed the conquest of the Holy Land in the following year.



SPINNING

Photo, Vester & Co., Jerusalem

and to free the Holy City of the Faith from a Mohammedan dominion. For a time Jerusalem became the capital of a small Christian kingdom, then it fell to the Mohammedan Power (Saladin), and was ruled by the Sultans of Egypt until, in the year 1517, it was captured by the Turkish Prince, Salim I, and absorbed in the powerful Ottoman Empire.

THE HOLY LAND.

Topographically, Palestine is considered to be mountainous, although with the exception of Mount Hermon, which reaches an elevation of about 10,000 feet, there are no peaks which rise above 3,000 feet. One range of low mountains extends southwards from the Lebanon, and runs parallel with the Mediterranean coast, while another turns

more to the east and forms the left side of the Valley of the Jordan. Here again we find the influence of history on geography, for although there are no mountains of topographical importance, there are, nevertheless, several, which are little more than hills, with names familiar in every Christian

Tabor (Jebel Tur), on the plain of Esdraelon ; and the wonderful Carmel, forming a promontory in the Mediterranean, on the south-west side of the Bay of Acre.

Deep valleys and level plains separate the mountains. Although *much neglected*, the soil is highly fertile, and the whole country



CALVARY

Photo, Vester & Co., Jerusalem

country, caused by their frequent mention in the Scriptures, and the remarkable events which occurred on and around them when the world was young. Most notable among these are the Mount of Olives, Zion and Moriah, in and near Jerusalem ; Gilead and Nebo, on the east side of the River Jordan ; Ebal and Gerizim, in the Samaria Valley ;

justifies its early description of a land flowing with milk and honey.

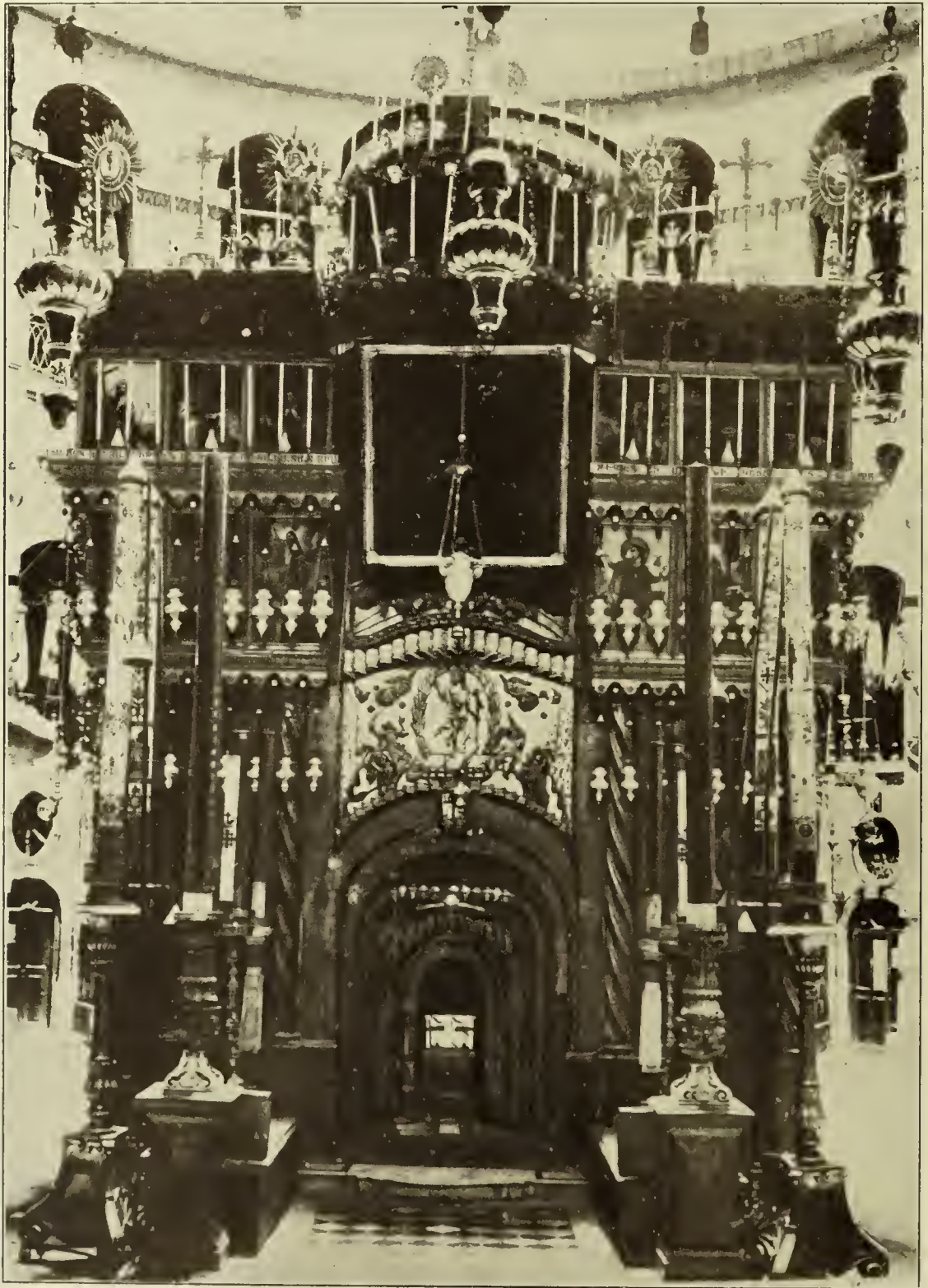
Although there are a large number of streams which water these somewhat dried-up and dusty lands, the Jordan is the only important river. One of the truly remarkable features of this stream is the great depth of the valley through which it flows.



Photo, Vester & Co., Jerusalem

VIA DOLOROSA, JERUSALEM, PALESTINE

It was up this winding, tortuous street that Christ is believed to have borne His Cross



THE HOLY SEPULCHRE

Photo, Vester & Co., Jerusalem



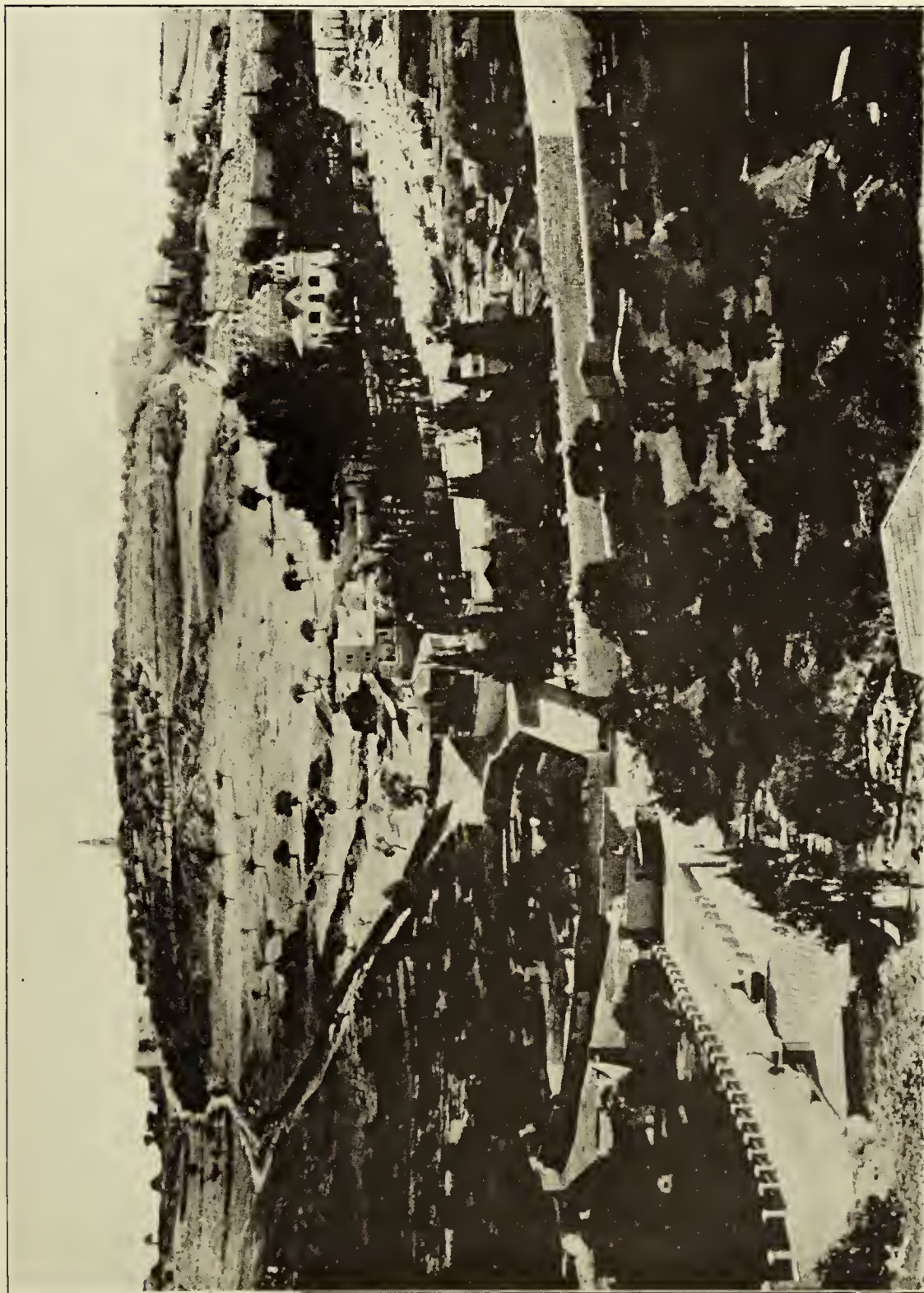
A STONE MASON, JERUSALEM

Photo, Vester & Co., Jerusalem



DOME OF THE ROCK, JERUSALEM

Photo, Vesler & Co., Jerusalem



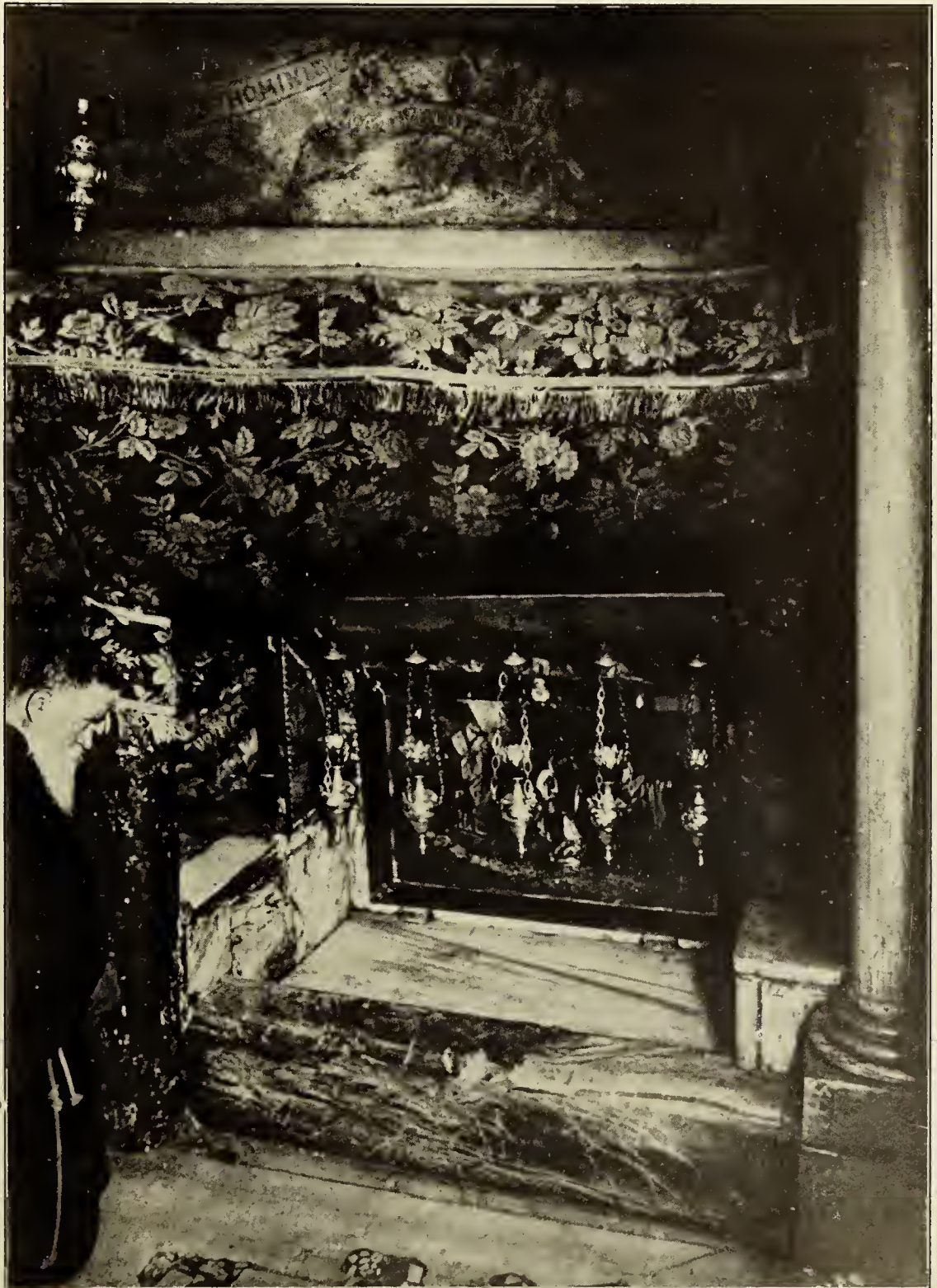
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OLIVET AND THE GARDEN OF GETHSEMANE



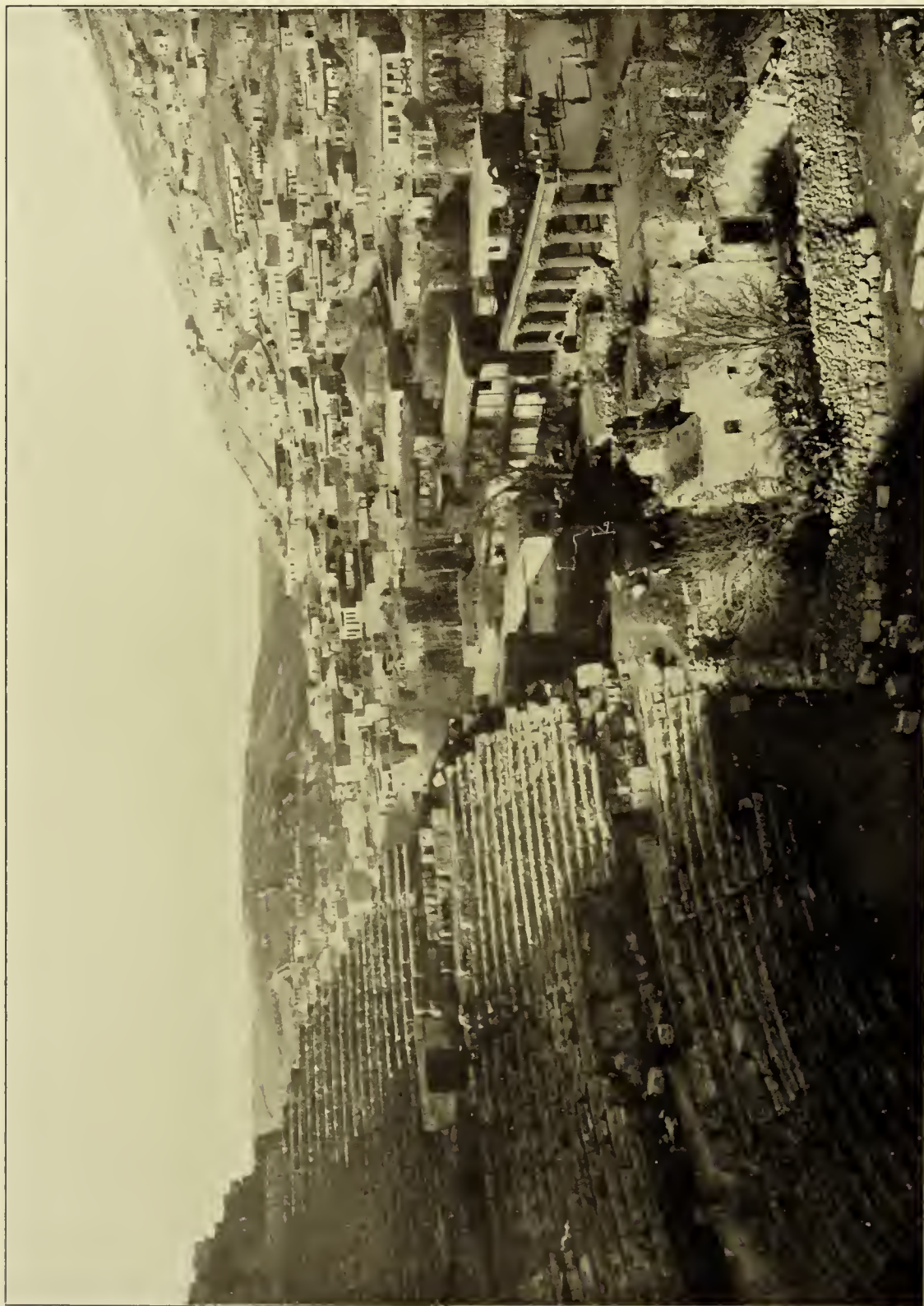
Photo, Vester & Co., Jerusalem

BETHLEHEM, THE CHURCH OF THE NATIVITY



THE MANGER, BETHLEHEM

Photo, Vester & Co., Jerusalem



CAPITAL OF TRANSJORDANIA

General view of modern Amman which is now the Capital of Transjordan. In ancient times it was the Capital of the Amonites, hence its name. In Roman times it was an important city, being one of the Decapolis. To the left of the picture, in the foreground, may be seen part of the Grand Roman Theatre capable of seating at least 4,000 persons. Transjordan, or Kerak—the country beyond the Jordan—has been under the Provisional Government of the Emir Abdullah (brother of King Faisal of Iraq), assisted by British Advisers.

Photo, Harold J. Shepstone

Rising in the Lake of Tiberias (Sea of Galilee), 84 feet below sea-level, it gradually falls until it empties itself into the Dead Sea, which is approximately 1,312 feet below sea-level.

The plain in which lies this remarkable "sea" is almost tropically hot, and in the deep Jordan Valley bananas grow well. A contrast is, however, afforded on the Mount of Olives, three miles from Jerusalem, where the air is always cool and at times quite cold. In the valleys of the Holy Land the days are often quite warm, but the nights are sometimes cold. Sleet and frost are by no means unknown among the high hills.

The celebrated lake, known as the Dead Sea, is situated in the old Pashalic of Damascus, 25 miles east of Jerusalem, and 10 miles south-east of the site of ancient Jericho. It has a length of about 41 miles, and a maximum breadth of $9\frac{1}{2}$ miles. It lies, "deeply embedded between lofty cliffs of naked limestone," and is surrounded by utter desolation. The waters are extremely salt,

and so buoyant that human beings can float without effort, like pieces of cork.

Situated about three miles from Jerusalem, on the great down known as the Mount of Olives, is Government House. It was originally built by the Kaiser, and is a vast, showy palace of maze-like stone corridors. In pre-war years, when German influence was making itself felt all over the Holy Land, this grey building on the sacred green mountain was the show-place of the German colony. From the windows and terraces, on the chilly hillside, can be seen, deep down in the valleys, almond trees, gay with pink and white blossoms, and orange-groves laden with fruit.

A POLYGLOT PEOPLE.

The modern inhabitants of Palestine are of many races, and speak many tongues. There are Arabs, Armenians, Turks, Greeks, Egyptians, French, Russians, Georgians, Poles, Italians and Britons. Hebrew and Yiddish are spoken almost simultaneously



HARVESTING

Photo, Vester & Co., Jerusalem

with Arabic and French. Turkish and English may also be occasionally heard, and Russian is known to a large number of the Jewish colony. There are churches, missions and hospitals of almost every race and religion, regardless of the fact that the

de Rothschild, and consist principally of Russian Jews, maintained either by private enterprise or by the Jewish Colonisation Association. Each colony has a *Waad*, or administrative council, for they possess almost entire autonomy. There are Jewish



Photo, Vester & Co., Jerusalem

A BREAD SELLER, PALESTINE

majority of the people belong either to the Mohammedan or the Jewish faith.

The Jewish colonies, of which there are about 45, mostly situated near Jaffa, seem to possess good roads, houses and well cared-for vineyards. Wine, which is not unlike Medóc, is largely made. These colonies were originally established by Baron

public libraries, schools, baths, synagogues, hospitals and agricultural schools. There is a Hebrew High School at Jaffa with over 800 students, and Hebrew is the language in general use throughout these colonies. Near to Jaffa there are also four German agricultural colonies. The Jewish settlers have over 140,000 acres under cultivation, cereals,

cotton and fruit being the principal productions.

JERUSALEM.

One of the oldest and most interesting cities in the world, Jerusalem to-day has a population of about 80,000, and is connected

sub-divided by other hills and depressions, forming the four hills; Zion, on the S.W.; Moriah, on the S.E.; Bezetha, on the N.E., and Acra, on the N.W. In the Valley of Jehoshaphat is the brook Kedron, which flows only during the rainy season. Overlooking the city is the Mount of Olives; and



Photo, Vester & Co., Jerusalem

ARABS AT JERICHO

with Jaffa, on the Mediterranean, by a railway line 54 miles in length. It is elevated about 2,500 feet above sea-level, and stands on a plateau, rugged and sterile in general appearance, although the olive grows well, and much of the land is more or less cultivated. The city itself lies between the Valleys of Jehosaphat and Hinnom, and is

other low eminences traverse and encompass the whole town.

The walls of Jerusalem have a length of $2\frac{1}{2}$ miles, and were built by the Turks, over three centuries ago, from the materials of the older walls.

It would occupy undue space to catalogue here the sights and holy places of this



THRESHING BY TREADING

Photo, Vester & Co., Jerusalem

mother of Christian cities. It is sufficient to mention the Garden of Gethsemane, situated at the foot of the Mount of Olives, the Pool of Bethesda, near St. Stephen's Gate, the Church of the Holy Sepulchre, the Via Dolorosa, up which Christ is believed to have borne His Cross, and the Noble Sanctuary. Then come the Mosque of Omar, the third of the holy places of the millions of Mohammedans, as it contains a relic of Mohammed ; the Dome of the Rock, standing on the site of Solomon's Temple, and the Holy Rock, or sacrificial stone of Abraham ; the Mosque of El Akra ; the Jews' wailing place, where men, women and children face the rough city wall while they weep and pray ; and finally the busy, narrow, overarched streets, lined with squatting Jews selling carpets, oranges and souvenirs (mostly from Europe), Armenians chatting and turning sewing-machines, Arabs with laden donkeys, and beggars innumerable.

When the westering sun tinges the grey-white cupolas with its yellow light, the square-looking city in its crumbling walls is indeed Jerusalem, the golden.

BETHLEHEM.

About five and a half miles south-west of Jerusalem, surrounded by hills and valleys, covered with olives and vineyards, stands Bethlehem, or the Church of the Nativity, which was built by Helen, mother of Constantine the Great, and is believed by many to stand on the spot where Jesus Christ was born. There is a cave beneath the chancel called by the monks from the neighbouring monastery "The Cave of the Nativity." An inscription reads, "*Hic de Virgini Maria Jesus Christus natus est*" (Here Jesus Christ was born of the Virgin Mary). The Church of the Nativity is believed to be the oldest Christian church in existence.

Palestine is too full of places of historic and religious interest to enable a guide-book description to be given here, and the exact location of many of these holy places has been questioned by modern authorities. Some have been proved to be false, and others are supposed to be genuine. The other towns of importance are : Nazareth, about

25 miles W.S.W. of the Sea of Galilee (Lake of Tiberias), with a population of just over 9,000 ; Jaffa, the headquarters of the Jewish colonies, with 48,000 inhabitants ; Gaza, with a population of 18,000 ; Acre, 6,800, and Haifa, with 34,100 people. The five railway systems have their main junction at Ludd. One line, the Rafa-Haifa, continues southward to Kantara, where passengers and freight are conveyed across the Suez Canal to the Egyptian State Railways (*q.v.*) ; another line runs from Haifa through Acre to Damascus in French Syria (Mandatory) ; then comes the Jaffa-Ludd-Jerusalem line, and two branches, one of which goes to Rafa and Beersheba. The whole country is divided into two administrative districts under District Commissioners, and the Capital District of Jerusalem. English, Arabic and Hebrew are the official languages. The total population is about 830,000, composed of 600,000 Mohammedans, 88,000 Christians, and 87,000 Jews. The revenue averages about £3,000,000 and the expenditure £2,200,000 a year. The foreign trade has been very one-sided, with a great preponderance of imports. The value of the exports averages £1,600,000 a year. It should, however, be remembered that Palestine has a large and valuable tourist traffic. The three to six millions sterling spent on imports include supplies for this traffic and also government stores and the requisites for the founding of the Jewish Colonies.

TRANSJORDANIA.

The three small districts of Transjordanian were placed under the same mandate as Palestine. They consist of Kerak, Balga and Ajlun, and are combined in an Emirate under an Arab ruler with a British Representative and a British Officer in command of an Arab Frontier Legion. The population is entirely Mohammedan. Both the agricultural and pastoral industries are carried on in the western region, but elsewhere the country is composed of desert. The exact area and population is at present unknown. Transjordanian is bounded on the north by Syria, on the south by the Hedjaz, on the west by Palestine and on the east by Iraq.

IRAQ

(MESOPOTAMIA)

THE old Turkish Province of Mesopotamia, formed by the Vilayets of Mosul, Bagdad and Basra, with a total area of about 144,000 square miles and a population of 2,849,282, was conquered by British and Indian forces in 1914-18, the Armistice with Turkey being signed in October of the latter year. The territory extends northward from the Persian Gulf to Kurdistan and eastward from Syria and the Arabian Desert to Persia.

The old name of *Mesopotamia*, which came into use after the Macedonian conquest of Asia, means, "The Land between the Rivers," and was applied to this territory because it lies in the valleys of the Tigris and Euphrates, which join waters at a point about 70 miles north of the town of Basra, and then flow in a single stream through the southern portion of the Vilayet of that name into the Persian Gulf.

ASIATIC EMPIRES OF THE PAST.

Although in that remote period of history about which so little is definitely known there appears, from discoveries made in recent years, to have existed a high degree of Asiatic civilisation in the area now known as Iraq, and as far back as 2750 B.C. we learn that Sargon I was ruling in Mesopotamia, so little reliable information is available that no systematic history is possible until many centuries later. The frequent mention of Mesopotamia in the Bible has led to the belief that this portion of Arabia was the land of Eden, but regarding the accuracy of this there is much doubt. In later years the tide of conquest ebbed and flowed across the Euphrates and Tigris giving ascendancy

to the Macedonians, Persians and Moguls. The modern history may, however, be said to begin with the conquest of Mesopotamia by the Turkish Sultan Selim I, who drove the Persians back across the Tigris, conquering Mesia (Arabia), Palestine, Syria, Egypt and Northern Mesopotamia. His son, Soliman II, completed the conquest in 1519, but the Arabs remained the real masters of the Persian Gulf littoral, although compelled to pay tribute to the Turkish Sultan, until the coming of the British.

BRITISH INVASION.

With the opening of the Great European War, Turkey joined the Central Powers, and the Allies declared war on the Sultan in November, 1914. Basra, on the Persian Gulf, was occupied by the Anglo-Indian forces under General Townshend on November 21st, 1914, and in June of the following year the small British and Indian force advanced, capturing Kut-el-Amara, and reaching Ctisphon. On December 1st, General Townshend and his few regiments were compelled by superior Turkish and Arab armies to retreat from Ctisphon to Kut-el-Amara, where he was closely besieged until April 29th, 1916, when the hard-pressed garrison surrendered to the Turks.

A strong relieving force under General Sir Stanley Maude had, however, been concentrated at Basra, and, although not able to relieve the garrison at Kut in time to save it from capitulation, commenced a general advance on Bagdad in February, 1917, recapturing Kut-el-Amara on February 24th, and Bagdad on March 11th. Samarra, to the north of the capital, was occupied in

April, and on September 28th the Anglo-Indian forces routed the Turks at Ramadie, on the Euphrates. General Sir Stanley Maude died on November 19th and the command of the forces in Mesopotamia was taken over by General Marshall. Early in 1918 the advance was continued. Hit, on the Euphrates, was occupied on March 9th, and Kifri, north of Bagdad on April 27th. Kirkuk, situated about 109 miles south-east of Mosul was captured, and nearly the

Indian Empire must be closely studied. In November of the same year a provisional Arab Government was set up, so that British rule should be purely confined to the maintenance of order and good government. In the following year (1921) the Emir Feisal, son of the King of the Hedjaz, was elected King of Iraq, and by a Treaty between Great Britain and this new State, signed in October, 1922, the former undertakes to use its good offices to obtain the admission



BAGDAD, CAPITAL OF IRAQ
The bridge of boats across the Tigris

whole of Mesopotamia was brought under Anglo-Indian control. In October, 1918, Turkey sued for Peace, and an Armistice was granted by the victorious Allies.

When considering the acceptance by Great Britain of the responsibility for the administration of Iraq, when requested by the Supreme Council of the Allies after the signature of the Treaty of Peace in 1920, whereby Turkey renounced her sovereignty over this territory, the geographical position of this country in relation to that of the

of Iraq to the League of Nations; and when this has been accomplished the mandatory responsibility of Great Britain will be more or less terminated. By a subsequent Treaty (1926) it was, however, agreed by Great Britain to continue the work of administration in Iraq for 25 years from December 16th, 1925; unless, before the expiration of that period, Iraq should have become a member of the League of Nations.

In 1924 this new Treaty was ratified by a National Assembly which met in Bagdad.

At the same time a law was passed creating a Constitution with a Senate of 20 members nominated by the King and a Chamber of Deputies consisting of 88 members, elected by manhood suffrage. The first Parliament of Iraq was inaugurated by H.M. King Feisul on July 16th, 1925.

IRAQ TO-DAY.

Mesopotamia, for the purposes of topographical description, is best divided into

often flooded river banks, which make highly-productive rice fields; and (4) the hot, desert-like littoral of the northern extremity of the Persian Gulf.

The climate of this vast region, which has a population of only about nine persons to the square mile, is very hot in summer, and unhealthy in the regions subject to inundations. Malaria among Europeans is prevalent, as well as certain kinds of tropical fevers. The plague in epidemic form has



RIVER SCENE AT BAGDAD
The circular boats are made of wicker work

four zones: (1) the country lying to the east of the River Tigris and bordering Persia, which may be considered as more or less fertile; (2) the territory lying between the Rivers Tigris and Euphrates, at one time in history one of the most fertile tracts in the world, but now, much neglected and subject to floods; (3) the territory lying to the west of the Euphrates, a flat, sandy and almost waterless plain, except along the

frequently visited the cities of Mesopotamia. In 1831, 4,000 died every day from this scourge of Asia. There is a hot wind, known as the *Samiel*, which blows during certain parts of the summer. The winter is cold and heavy rains occur usually about the end of September or the beginning of October and again in April and May, converting much of the country into a dreary mud flat. In summer the flies are troublesome, but

there are long dry periods of great heat, when the country may be considered not altogether unhealthy.

The cultivated and irrigated areas yield abundant crops of cotton, rice, tobacco, hemp, flax, and even wheat and barley, but there are, at present, immense expanses of desert and much flooded land during the rains, although many improvements have been effected since the beginning of the British administration. The chief agricultural products are wheat, barley, rice, beans, peas and Indian corn. The average area under cultivation is 1,700,000 acres, the water being obtained almost entirely from the Rivers Tigris and Euphrates. The Government Irrigation Service has, during recent years, largely concentrated its efforts on the smaller schemes providing almost immediate revenue; but, in 1924, a concession was granted for a large irrigation and agricultural scheme in the Diayala River Valley. In 1925 a concession was also granted for the exploitation of the oil deposits in the Bagdad and Mosul regions.

The fertility of the soil of Mesopotamia, when properly attended to, has been proverbial for many centuries, but agriculture, commerce and all else has suffered from lethargic Turkish rule for so many years, that even under enlightened administration, combined with the outlay of much capital in irrigation, some considerable time must elapse before this naturally fertile tract can be made to yield a tithe of what it is capable of producing. About the mineral wealth of Mesopotamia little is definitely known. Petroleum has been discovered on the Middle Tigris, and for centuries past pearl fishing has been an industry in the Persian Gulf.

Mesopotamia has been administered by the British since its conquest during the Great European War, and much has already been accomplished in the way of agriculture, road construction and maintenance, the protection of life and property, water transport, and honest financial and judicial administration. One year after the conclusion of the war there had been opened thirteen Government primary schools, four Municipal schools, a school for the training of native teachers, and one for instruction in surveying. Agricultural classes were also being formed in many parts of the country. Land untilled for centuries, had been ploughed and

seeded by the use of mechanical tractors, imported for war purposes and now turned to more productive uses. Artillery horses have also been largely used to supplement the efforts of the people to recover agriculturally from the devastation and stagnation of misrule followed by war. Trade has been greatly stimulated by the establishment of a more or less regular system of water transport, aided by power-driven vessels imported for the British campaign, and also by the construction and repair of roads, and the security of life and property, which hitherto existed only within the cities, and was then qualified by the usual extortions of Oriental maladministration. The Port of Basra has been equipped with wharves and railway sidings. Hospitals and dispensaries have been established all over the country, and the increase in the cultivation of the soil increased by 63 per cent. in one year.

BAGDAD.

The capital of Iraq is a city of about 175,000 Turks, Arabs, Kurds, Armenians and Jews, with a sprinkling of British and Indian officials and the military. It stands on the banks of the Tigris, at its junction with an important tributary flowing down from the Persian hills, and is subject to floods. A severe inundation, which followed the plague visitation in 1831, was supposed to have drowned 15,000 people in one night.

Bagdad, which was at one time the capital of the Khalifs, stands on both banks of the Tigris, about 190 miles to the north of the junction of that river with the Euphrates. It is a walled city bordered and intersected by palms. From the distance it presents a truly Eastern and picturesque appearance, but on closer acquaintance is found to be dirty and dilapidated, although considerable improvements in regard to sanitary arrangements have already been effected, and there are over 100 mosques with gaily tiled domes and minarets, reflecting in mosaic colours the brilliant rays of the Arabian sun.

The principal bazaar, built originally by Dawd Pasha, has been one of the finest in all the Turkish Dominions, and, even now, is well stocked with the diverse arts and commodities of both East and West. This city has been for centuries the emporium for the vast and thickly-populated tracts of South Central Asia.



A STREET IN BAGDAD

Photo, Harold J. Shepstone

In 1258 Bagdad was destroyed by Hulagu Khan, and, when rebuilt, it became, in later years, the capital of the Abbasside dynasty, during which period the best-known Khalif was Haroun al Rashid of "The Arabian Nights."

The only other towns of importance are Mosul, on the upper reaches of the Tigris, opposite the site of Nineveh, with a population of about 98,000; Basra, below the junction of the Tigris and Euphrates, on the Persian Gulf, with a population of about 88,000; the old city of Ctisphon (ruins), from which General Townshend retreated to Kut-el-Amara in December, 1915, and a few large villages on the Euphrates and Persian Gulf.

BAGDAD RAILWAY.

The importance of the British sphere in the Persian Gulf, because of its proximity to that portion of the Indian frontier which is naturally most difficult to fortify, has long been conceded. The Gulf itself was cleared of pirates and made safe for navigation by the long-sustained efforts of the British Navy, treaties of friendship were effected with the Arab chiefs of the hinterland, to whom subsidies were also paid. Aden, to the west of this coast line was heavily fortified and was included in the Indian sphere, while Quetta at the eastern extremity and on Indian territory became an important garrison town.

In face of these well-known political and military factors, Germany, in 1899, obtained from the Sultan of Turkey a concession for the construction of large sections of a Bagdad Railway. The control of this line by a militant Germany would have constituted a continual threat to this important British sphere of interest—for it was nothing more at that date—and, thereby, to the safety of the Indian Empire.

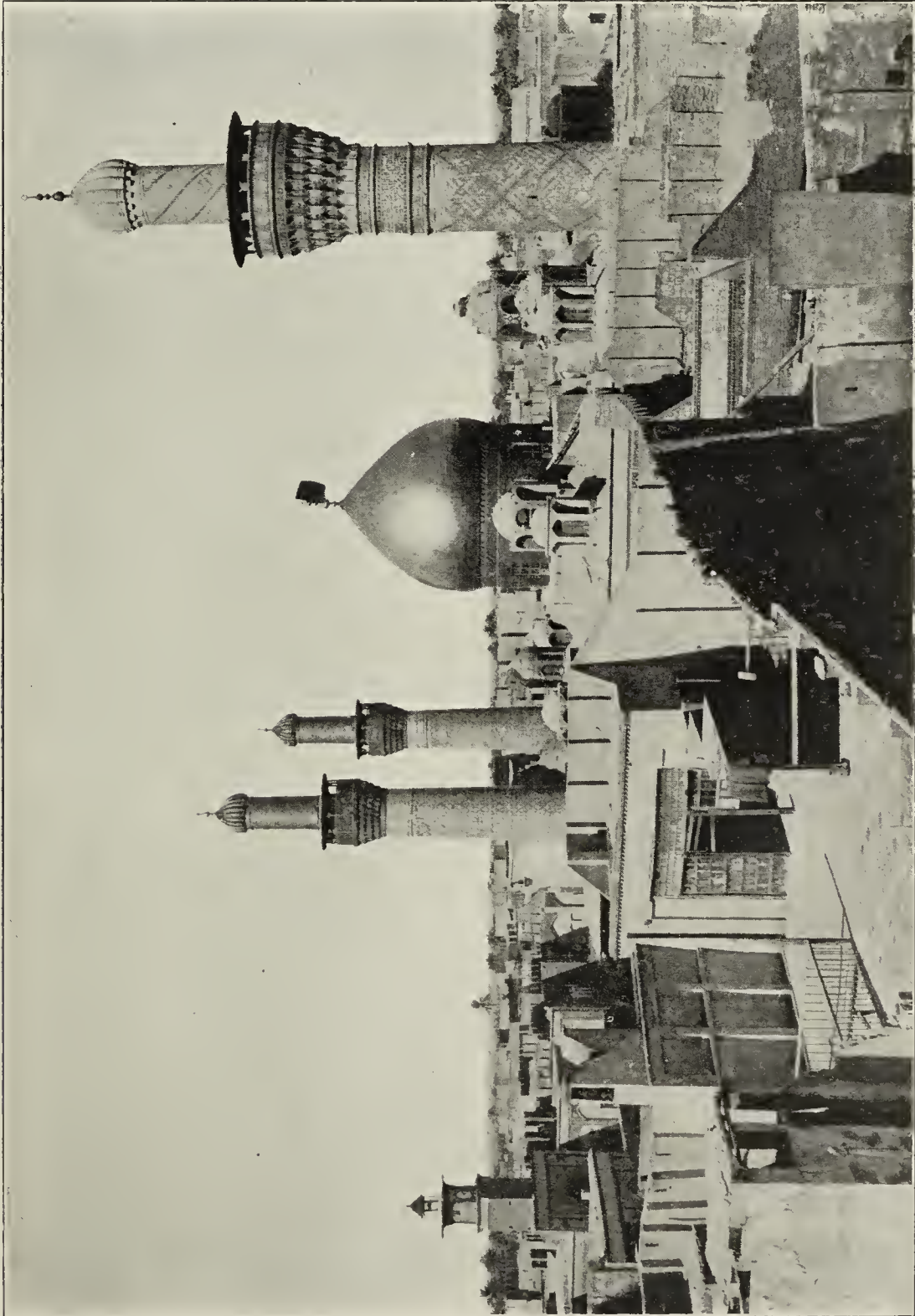
For these reasons there were times when diplomatic discussions raged around the granting by Turkey to Germany of this iron-road from Europe to the East. It was the German scheme to continue the existing Anatolian Railway from Konia (Kinich), *via* Adana to Aleppo and Jerablus, where the line would have crossed the Euphrates into Iraq, and from there it was to be extended to Mosul and then down the south bank of

the Tigris to Bagdad and the Persian Gulf. One projected branch from the main system was to run *in the direction of the North-West Frontier of India*, through Persia, and another was to extend westwards *towards Egypt*. About 1,200 miles of this line, out of a total length of 1,550, had been constructed by 1914, but, owing to the strong opposition of the British Government, the Persian Gulf Section was to be in British hands.

At the present time about 1,000 miles of this line is being worked. The total distance from Basra, on the Gulf, to the terminus of the Anatolian railway system is 1,550 miles. The first through train from Basra to Bagdad left the former port on January 13th, 1920. Other sections have been built to the north of the capital, and the line coming down from Aleppo crosses the Euphrates at Jerablus and enters Iraq. There are, however, several gaps in the system, especially in the desert of Northern Iraq and among the Aleppo hills. When this line is completed it will be possible, with only a short break, to travel by train from London or Calais to Bagdad and Basra.

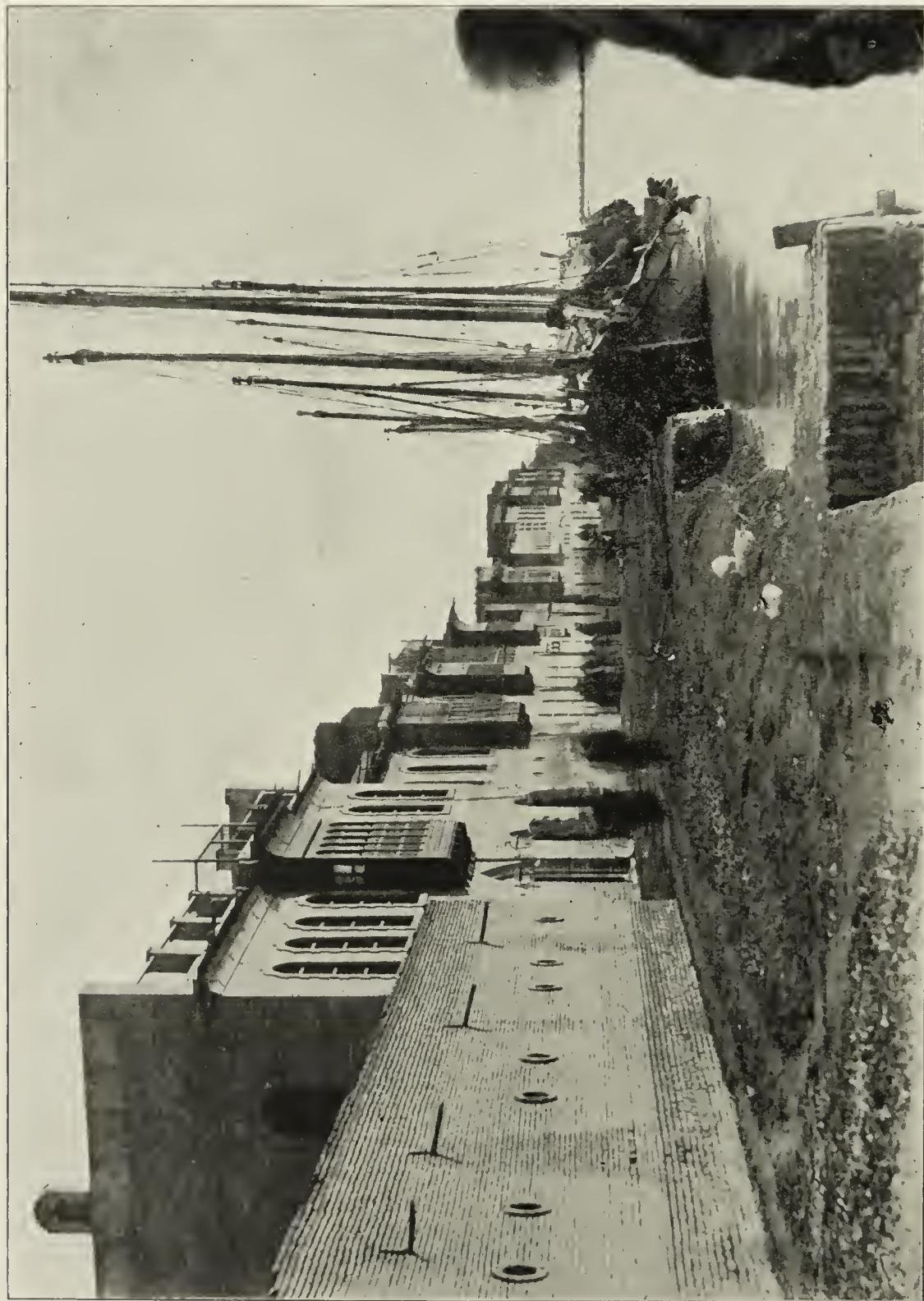
IRRIGATION.

It is known that Iraq in ancient times was a rich and highly fertile land, but the fact that much of its fertility was due to primitive forms of irrigation has only recently been established. In 1908 Sir William Willcocks carried out a more or less complete survey of large areas of country which had apparently been desert for many centuries. This survey brought to light clear evidence that many tracts of waste land had been irrigated in remote ages. A vast system of water conservation was projected by Sir W. Willcocks, which would convert hundred of thousands of desert acres into fertile and cultivable lands. The pioneer work was completed, and the first section of the gigantic irrigation scheme carried out successfully by the completion of the Hindie Barrage in December, 1913. The work of irrigating Iraq was being carried on when the Great European War broke out and stopped further operations. Almost immediately after military operations had ceased however, a Government Irrigation Department was formed and many small and inexpensive works have been



Photo, Harold J. Shepstone

THE GOLDEN DOMES AND MINARETS OF KAYEMAIN
A Shia Settlement near Bagdad



AMARA, A TOWN ON THE TIGRIS, MIDWAY BETWEEN BAGDAD AND THE PERSIAN GULF
Photo, Harold J. Shepstone

completed with very satisfactory financial results. In 1924 a concession was granted for the agricultural development, by means of extensive irrigation works, of the Diyala Valley.

PEOPLE AND INDUSTRY.

The population of Iraq at the Census in 1921 was only 2,849,282, whereas it has been estimated that if proper water conservation schemes were carried out the country could easily maintain 20,000,000 people, so fertile is the soil when properly irrigated. In cotton growing alone, an industry which has become important during recent years, it is considered that with water and labour 300,000 bales of this commodity could easily be produced every year for the mills of the world.

Iraq is at present divided into three vilayets :—

Bagdad,	with a population of	1,360,304.
Basra,	„ „	785,600.
Mosul,	„ „	703,378.

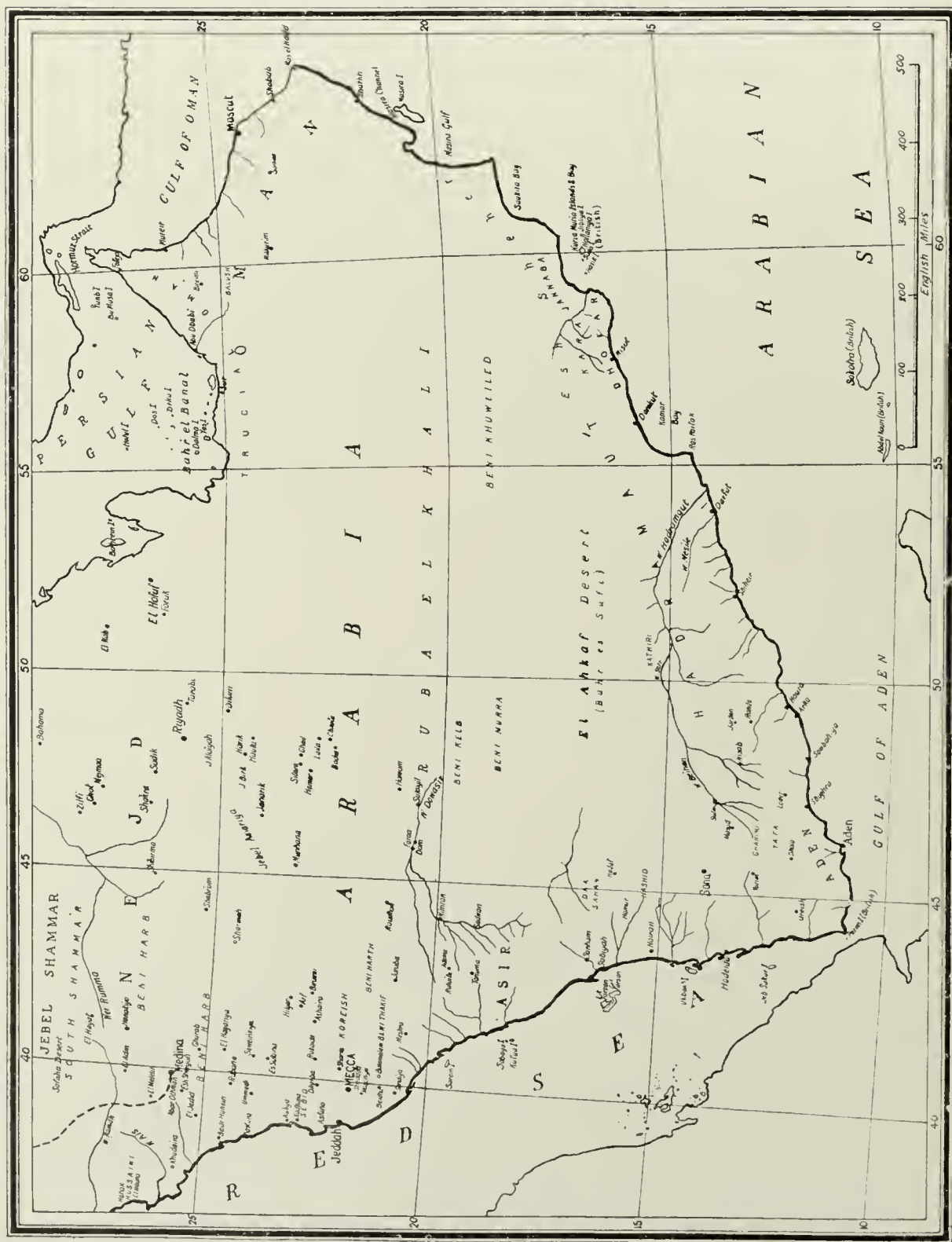
The vilayet of Mosul covers much of the ancient Kingdom of Assyria, and the ruins of the old capital can be seen on the banks of the Tigris near the present town of Mosul.

The population is divided into the following religious groups : (1) Sunni Mohammedans, 1,146,685; (2) Shīte Mohammedans, 1,494,015 ; (3) Jews, 88,000 ; (4) Christians, 78,000 ; and (5) other Eastern religions, 43,000. The area under cultivation is about 1,700,000 acres, and the principal crops are wheat, barley, beans, rice, peas and Indian corn. The revenue averages £3,800,000 and the expenditure £3,360,000 a year. The value of the foreign trade is approximately £30,000,000, made up of imports, £17,100,000 and exports, £12,900,000 a year.

An air mail service has been established (weekly) between Bagdad and Cairo (842 miles), effecting a saving of 14 days over the old overland route from England to the capital of Iraq. A motor car service is in operation between Bagdad, Damascus, Beirut and Haifa.



ADEN & ARABIAN HINTERLAND



SPECIALLY DRAWN FOR THE ENCYCLOPEDIA OF THE BRITISH EMPIRE BY A. H. LEE.

TANGANYIKA TERRITORY

THIS territory, which was formerly German East Africa, has an area of about 373,500 square miles, and a population of about 4,400,000. Under German administration there was a population of over 7,600,000, in 1913, but since the transfer of this territory to Great Britain the thickly-populated provinces of Ruanda and Urundi have been included in the Belgian sphere. The Europeans in the British zone number about 4,350, and the natives are, principally, of the mixed Bantu tribes.

Tanganyika is bounded on the north by Kenya and Uganda (*q.v.*), on the west by the Congo State (Belgian), Rhodesia and Nyasaland, on the south by Portuguese East Africa, and it has an eastern coast line, on the Indian Ocean, of about 520 miles.

PARTITION OF EAST AFRICA.

Setting aside the Anglo-French Treaty of 1862 Germany commenced aggressive operations on the East Coast of Africa, in the sphere generally acknowledged as tributary to the Sultans of Zanzibar (*q.v.*), in 1884. Dr. Karl Peters, of the "Society for German Colonisation," made so-called treaties with the various Chiefs and annexed the territory, which, up to the Peace of 1919, formed German East Africa.

Strong protests came from the Sultan of Zanzibar, who had, himself, given the German pioneers letters of recommendation to officials of his Government already occupying portions of the territory, but, on the advice

of the British Agent, the question was referred to diplomatic discussion in London and Berlin.

At this time (1884-5) the foreign affairs of Great Britain were in a state of peculiar and unavoidable complexity. The great work of reorganising and controlling the administration of Egypt had commenced and France was, in consequence, a jealous rival; trouble was brewing on the North-West Frontier of India; the Transvaal was in a state of unrest; and there was every possibility of disturbances in the West African hinterland. It was doubtless these reasons which induced Lord Granville to give way to the desires of Prince Bismarck. The German Emperor granted a Charter of Protection to the Society in 1885, and a German squadron visited Zanzibar and obtained the Sultan's recognition of the new Protectorate.

A few months later the "British East Africa Association" was formed to exploit the territory lying to the north of the German Protectorate, and a mixed British, French and German Commission was formed to delimit the territory belonging to the Sultan of Zanzibar on the mainland of Africa. Germany refused to recognise the right of the Sultan to anything but a few isolated towns and a narrow strip of coast. The Commission furnished a report and a settlement was effected in London in 1886. The Sultan was confirmed in his possession of the Islands of Zanzibar and Pemba and all the islands off the coast, a strip of land 10 miles broad from Tunghi Bay, in the south, to Kipini, in the north—on the mainland of Africa—and a

number of isolated places situated to the north of these limits.

Italy purchased the important parts of the Somali coast, and Germany acquired the rights of the Sultan of Zanzibar to the narrow strip of East African coast territory by the payment of four million marks in 1890 ; thus consolidating her East African possessions. The annual subsidy from the Imperial German Government averaged over £300,000,

during 1915-16-17. The capital, Dar-es-salaam, surrendered to the British on September 4th, 1916, and after protracted bush fighting, German East Africa was finally conquered by the Allies in December, 1917.

A SURVEY OF THE TERRITORY.

This portion of East Africa resembles very closely the adjoining British territories of



TANGA

A small town and port in the Tanganyika Territory

and enabled railways and public works to be constructed in the territory.

On the outbreak of the Great European War in 1914 armed forces were organised in Kenya, Uganda, Nyasaland, Rhodesia, and United South Africa for the invasion of the German Protectorate. Actual operations were somewhat delayed for the conquest of German South-West Africa to be completed, and for the despatch of Allied forces from the Belgian Congo and Portuguese East Africa. The various columns advanced

Kenya and Uganda. It has a low-lying coast with a hot and damp climate. Here are mangrove forests, tamarinds, coco-palms, and a chaos of tropical vegetation. Strictly speaking, this portion of the territory is not suitable for the permanent residence of whites, and must always remain, so far as labour conditions are concerned, a black man's land. The climate is somewhat malarious, and the land swampy. About one hundred miles inland the country rises considerably, coffee plantations take the



MWANZA. THE OLD BISMARCK MEMORIAL

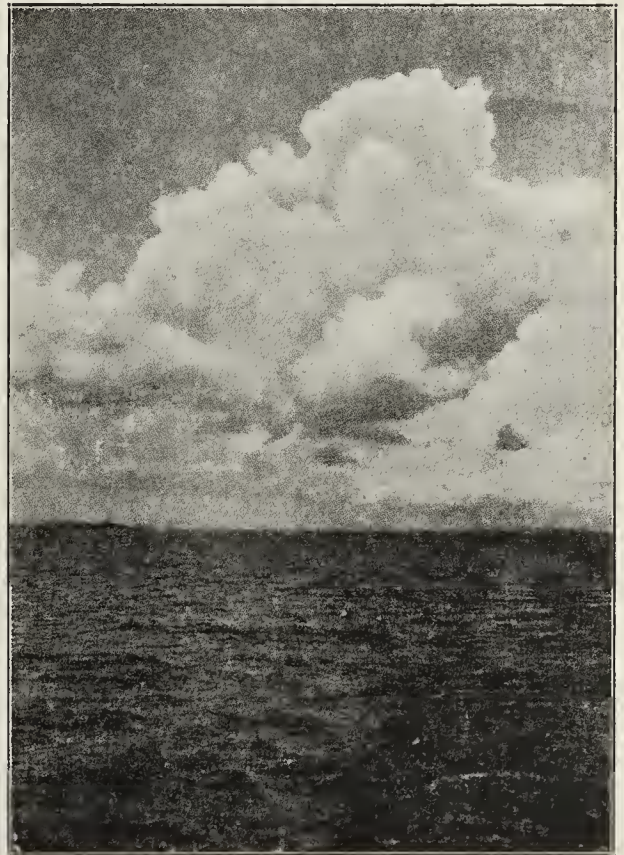
place of mangrove swamps, and cotton trees, acacia, sycamores, banyans and other more temperate vegetation replaces the prolific growth of the tropical sea-board. Within a few miles the summit of the East African plateau is reached, and open bush country, interspersed with immense areas of prairie land, extends for many miles towards the centre of the continent, gradually decreasing in altitude until the equatorial forests and lakes of "Darkest Africa" are reached (average altitude 4,000 feet). The climate of the highlands is cooler, drier and much more healthy for Europeans than the feverish coast lands, but in the southern districts of Tanganyika the country bordering Portuguese East Africa is decidedly low-lying and unhealthy, whereas on the northern frontier, adjoining the Kenya highlands, Mount Kilimanjaro, one of the highest mountains in Africa, raises its huge sugar-loaf crest 19,000 feet into the air. It is clad with eternal snows, and surrounded by sombre forests.

From Voi Station, on the Uganda Railway, runs a branch line connecting with the Tanga Railway to Moshi (2,657 feet), on the slopes of Kilimanjaro.

VICTORIA NYANZA AND TANGANYIKA.

A portion of the great Victoria Nyanza lies within this region, and is situated between the Equator and 3° S. latitude, 585 miles from the coast. This huge lake is about 240 miles in length, and 150 miles in breadth. It is elevated about 3,800 feet above sea level. Much of the surrounding country is covered with dense tropical forests, but during certain seasons of the year the climate is by no means unhealthy.

One of the principal lake ports in the ex-German sphere is Shirati, where the country is decidedly barren, with the exception of some avenues of acacias and wild fig trees, planted by German officials in the neat

*Photos, Uganda Rly.*

VICTORIA NYANZA
The Great Central African Inland Sea

little, half-native town dominated by the fort. Hippopotami are here very numerous. On the island of Elkerewe, situated about one hundred miles south-west from Shirati, herds of elephants roam about, and are so tame that they approach the encampments, but it is against the law to shoot

The most striking feature of this portion of Victoria Nyanza is the calm serenity of the scene. "Water-fowl skim over the lake, and now and again the white sails of a dhow gleam in the distance, as she works her way round some rocky headland. Canoes 40 or 50 feet long, such as in the old days were

THE PALM AVENUE,
MWANZA



MWANZA GULF,
VICTORIA NYANZA

Photos, Uganda Rly

on this preserve. At the head of Speke Gulf, an arm of this inland sea, big game are very plentiful, and can be shot under licence. Here also gold and diamonds have been found.

The next port, going round the lake from east to west (a fortnight's voyage) is Mwanza.

used for conveying Europeans across to Uganda, occasionally glide along, propelled by paddles. The setting sun sheds its glory on sky and water alike, throwing into sharp relief the numberless islands and creeks, which stretch away as far as the eye can reach down the Mwanza Gulf. It is, perhaps,



JUNGLE AND STREAM IN EAST AFRICA

Photo, Uganda Rly.

one of the finest bits of scenery on the lake, and has a charm of its own."

"The town of Mwanza is as clean as a new pin, and the avenues of trees furnish grateful shade. An enormous 'fetish tree' is an object of curiosity, and there is a very large and interesting market. Travellers in pre-war days were shown with some pride the Bismarck Memorial—an obelisk—surrounded by shady trees, bearing a large brass medallion

in the seventies."* Bukoba is the only other little lake-side port-of-call for the steamboat service on the Victoria Nyanza. (See also under *Kenya* and *Uganda*.)

CENTRAL TANGANYIKA.

Much of this portion of the country is sterile and the main railway line, 773 miles in length, which crosses the Tanganyika Territory from the capital, Dar-es-Salaam,



GOVERNMENT HOUSE, DAR-ES-SALAAM
Capital of the Tanganyika Territory

of Germany's old hero. Mwanza is one of the oldest European settlements on the lake, and it was here, in the middle of the last century, that the great explorer Speke, journeying from Lake Tanganyika, first set eyes on Victoria Nyanza, and confirmed the reports that had long been circulating in the coast districts of the existence of a great lake in the heart of Eastern Equatorial Africa. From near here, also, Stanley commenced the first proper circumnavigation of the lake

on the Indian Ocean, to Kigoma, the chief port on Lake Tanganyika, depends for its traffic very largely upon the trade of the lake district, which is both fertile and populated. The cost of this railway, which was constructed during the German régime, amounted to nearly £6,000,000.

After leaving Dar-es-Salaam the line runs through the coco-nut belt up the valley of the Msumbusi River. For the first fifty miles the country is low-lying, with oc-

* *From Mombasa to Victoria Nyanza*, published by the Uganda Railway, Nairobi.

casional plantations of sisal and then cotton. About 100 miles from the coast the line begins to ascend, with fine mountain scenery all around. At Morogoro, where the altitude is over 1,700 feet, there is an administrative post and an hotel which is patronised during the hot season on the lowlands of the coast. On the hill slopes around there are numerous plantations of both sisal and rubber.

During the next sixty miles the line climbs steadily up to the central plateau

(Kenya), a distance of about 350 miles ; and southwards to Lake Nyasa, 451 miles. The next place of importance is Tabora, 532 miles from Dar-es-Salaam. This town has a native population of about 27,600, with 148 Europeans, and over 1,000 Indians. Being situated at an altitude of 3,700 feet, the climate is comparatively healthy. There are golf links, hotel, sports club and a European as well as a native hospital. Tabora was once a great centre of the slave trade and was founded by Arab traders in " Black



THE MARKET, DAR-ES-SALAAM

of Tanganyika. Kilossa, 184 miles from the coast, is a neat little township in the midst of cotton and rice fields, which, however, are mostly cultivated by the natives. Although dry season roads radiate in all directions, and near-by are the now almost deserted Lupa goldfields, the climate is not altogether healthy, owing to the swampy nature of the land.

Still the line rises, at Dodoma the altitude has reached 3,713 feet, and the surrounding country appears to be exceptionally suitable for cattle-ranching on a large scale. There are motor roads from this place to Nairobi

Ivory." A branch of the main line runs from Tabora through cotton-growing country to Mwanza, the port on Lake Victoria.

The main line of the Tanganyika Central Railway continues westwards through the almost uninhabited tse-tse fly country, past the sacred mountain of Mwariye, the burial place of native chiefs, to Kigoma, the port on Lake Tanganyika. This little town, which is 773 miles from the coast, is situated a few miles to the north of Ujiji, a place of some importance in the old days. It was here that Sir H. M. Stanley found Dr. Livingstone in 1871.

LAKE TANGANYIKA.

Situated at an altitude of 2,600 feet, it is about 455 miles in length and from 30 to 50 miles in breadth. This Central African inland sea is, with the exception of Lake Baikal, the deepest fresh water lake in the world. Soundings of over 4,000 feet have been obtained. The surrounding scenery is exceptionally picturesque. During the Great War a miniature naval battle took place on its surface. Two British armed motor boats, transported overland from Cape

and administrative headquarters, which is a clean and well laid-out European town, connected with the interior by railway and telegraph, and with the outside world by cable and wireless. The harbour is small but almost land-locked and very picturesque, being encompassed by tropical growth. The town, which is really situated on an "island," is illuminated at night by electricity and every road is an avenue of flame trees. Here, as elsewhere in East Africa, the shopkeepers are mostly natives of India. There



THE HARBOUR, DAR-ES-SALAAM

Town (!) attacked and sank the German vessels *Kingani* and *Hedwig von Wissman*, during 1915 and 1916. Near Kituta, on the east coast are the Kalambo Falls, which, with a drop of 882 feet, are among the most lofty in the world. The coast line generally is mountainous, reaching 8,000 feet in places. The climate is comparatively healthy. Passenger and cargo steamers traverse the lake in about four days.

DAR-ES-SALAAM.

The principal seaport along the 520 miles of coast-line is Dar-es-Salaam, the capital

are several clubs, small hotels, and a safe bathing beach. Motor cars and rickshaws are the means of transport. The principal drive is round the island. Dar-es-Salaam is certainly one of the most attractive towns in East Africa.

The other coast towns, very few of which are accessible to ocean steamers, are Saadani, Pangani, Kilwa, Sindi, Tanga and Mikindani.

There is an extensive and well-kept system of highroads throughout the territory, with Dâk bungalows, or rest houses, at intervals. The area of the forests belonging to the Administration is over 650,000 acres, and

there are several experimental farms, also plantations of coffee, cotton, tobacco, vanilla, coco-nuts, tea, sugar and sisal hemp. There are about 3,147,442 cattle and 3,405,103 sheep and goats in the territory.

There is a fairly extensive educational system, with several hundred thousand pupils, but, when it is remembered that slavery was only abolished in 1905, and that even up to the time of the British occupation a mild form of slavery was in vogue, it is scarcely to be expected that

education will make much headway for some years.

The chief exports are copra, rubber, coffee, ivory, sisal, ground-nuts, skins and cotton. The minerals known to exist include iron, lead, copper, coal, mica and salt, while topaz, moonstones, tourmaline and garnets have been found. The average annual value of both imports and exports is approximately £3,000,000 each. The revenue averages about £2,000,000 and the expenditure £2,200,000 a year.



SOUTH-WEST AFRICA

GERMAN South-West Africa was invaded, on September 27th, 1914, by 65,000 Union troops under General Botha. Windhoek, the capital, was entered on May 12th, 1915, and the country finally conquered two months later. Since then it has been administered under Mandate as an integral part of the Union of South Africa. It is, therefore, a grandchild of Empire.

“ The history of these parts bears us back for a thousand years to a period when Bushmen—primitive, yet not entirely uncultured—held the land. These little folk, always pastorally inclined, were rich in cattle even in those distant times, and it is believed they came to this South-West corner as a refuge from other tribes with whom they had previously dwelt in Central Africa.



ZOOLOGICAL GARDENS, WINDHOEK, SOUTH-WEST AFRICA

Photo, South African Government



Photo, South African Ry.

WINDHOEK, CAPITAL OF SOUTH-WEST AFRICA
(5,590 ft. above sea level)



THE OLD "KAISERSTRASSE," WINDHOEK

"Later came other native tribes—Haukoins, Berg Damaras, and Ovambos, and in the early days of the eighteenth century the Hereros conquered the territory, driving the Bushmen and others to the southward or into the mountains.

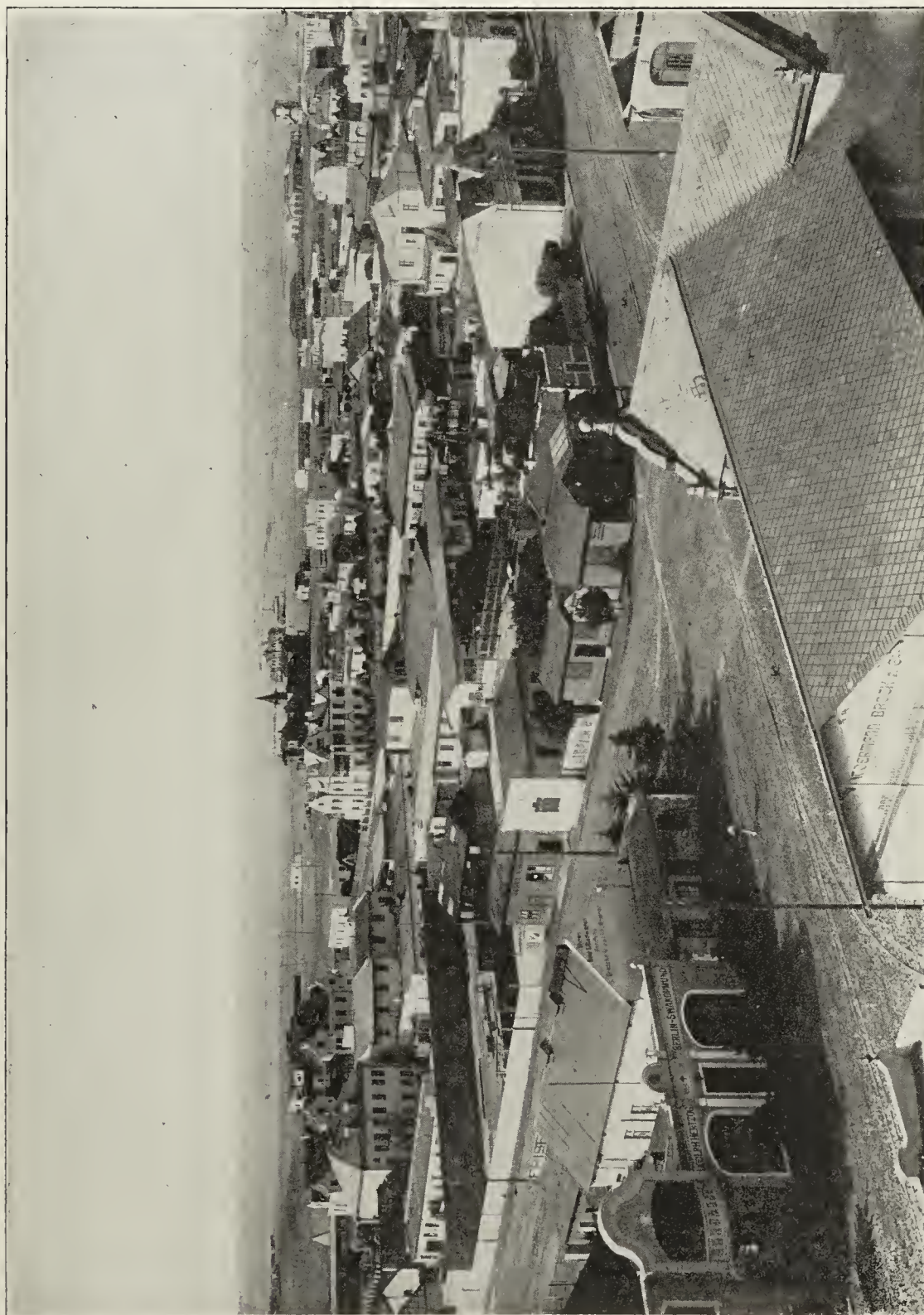
"Bartholomew Diaz was probably the first white man to set foot on this coast. In 1486 he landed at Angra Paquena—now called Luderitz—and erected a monument; but several centuries elapsed before white men gave serious attention to the country.

"One, Jacobus Coetzee, of adventurous spirit, penetrated far into Great Namaqualand, in the year 1760, and reported finding a countryside rich in cattle. Other Dutch *voortrekkers* followed, prospecting, and found valuable deposits of copper.

"In the year 1792 Chevalier Dunning sailed into Walvis Bay and formally laid claim to the land on behalf of the Dutch nation. Four years later the British sloop *Star* cruised along the coast and took possession of several ports.

"Midway through the nineteenth century the Bushmen, who, under two able leaders, Jonker Afrikaner and Oasib, had developed into a strong fighting race, made war on the Hereros, completely subduing them, and imposing most rigorous restrictions on their activities. Later the Hereros were able to release themselves from bondage; but so unsettled became the country that in 1873 the Government of Cape Colony, as the Cape Province of the Union of to-day was then called, intervened and endeavoured to bring peace, with but partial success.

"German enterprise eventuated not long afterwards, the Bremen Company acquiring a huge tract of land from the Chief of South Namaqualand for a payment of £200 and a quantity of firearms. In 1885 Germany annexed the territory extending from the Orange River to Cape Frio, and a Chartered Company governed until 1892, when the German Imperial Government took over the reins. A succession of native wars followed,



SWAKOPMUND

Photo, South African Government

Once the chief port of South-west Africa but now closed to shipping. It is becoming a favourite seaside resort

at heavy cost in men and money to the German Government.

"Hottentots, Hereros, Afrikanders, Swaambois, Bastards, and Bondelswarts were in turn fought, and in 1904 was started the Herero war that lasted four years and cost Germany almost 3,000 men and £30,000,000. The tribes engaged, however, were reduced by approximately 80 per cent., but few males surviving.

Geographically, the Protectorate is situated on the west coast, at the southern extremity of the African continent, and is bounded on the north by Angola, or Portuguese West Africa, and on the south and east by the Union of South Africa and Bechuanaland. It has a coast-line of about 840 miles (including Walvis Bay, *q.v.*), which is washed by the South Atlantic. The area is 323,000 square miles, and the population about



ON THE NAMIB DESERT

"In 1914 German forces invaded the Union, but by July, 1915, the whole territory was in the hands of the Union authorities and the enemy army held captive. South-West Africa was mandated to the Union of South Africa in September, 1919, and in 1925 a new constitution was granted to the territory. A Legislative Assembly, consisting of eighteen members, was established, of whom six are nominated by the Government of the Union of South Africa, the Administrator and seven others forming the governing body."*

300,000, of whom, approximately, 25,000 are whites (about 9,000 of whom are Germans), exclusive of the military forces and administrative officials of the Government.

Topographically, the country may be divided into three zones: (1) the hot, waterless, desert region of the south (Namaqualand); (2) the slightly more fertile centre (Damaraland); and (3) the tropical northern territory adjoining Portuguese West Africa (Ovamboland). The coast, except where irrigated, is mostly barren, and the prevailing south-westerly winds and heavy Atlantic

* *Vide* "South West Africa," by H. Miles, M.C., in *Sidelights on South Africa*.



NATIVE WOMEN ON THE BANKS OF A SOUTH-WEST AFRICAN RIVER *Photo, South African Government*

rollers render almost useless for shipping purposes many of the natural anchorages along the 840 miles of coast, the exception being Walvis Bay (which has always belonged to Great Britain) and Luderitz. An effort was being made by the Germans in 1914 to convert Swakopmund into a fair-weather port, but the unsuitability of the place has caused the work to be abandoned.

plantations along the coast and in the central zone. Tobacco growing is increasing. Cotton is being tried, viticulture has existed for some years, and silk culture is in the experimental stage. Market gardens are numerous.

The principal industry is live-stock breeding, and the number of animals at the time of the British occupation was as follows:



Photo, South African Government.

MARBLE QUARRY, KARIBIB

Much has been done during recent years to obtain supplies of water on the desert trails by means of artesian wells, and, for the most part, these wide-spread boring operations have proved successful, greatly benefiting the pastoral industry. There is but little agricultural activity, except in the north, where the Ovambo natives cultivate considerable, but scattered areas of land. There are, however, a number of prosperous

cattle 210,000, sheep 480,000, horses 16,000, mules and asses 14,000, camels 700, pigs 8,000, angora goats 32,000, other goats 490,000. The natives, especially the Hereros and Hottentots, own large numbers of cattle, sheep and goats. The total area of South-West Africa is approximately 83,000,000 hectares of 2.4 acres, of which 13,353,000 hectares were alienated, or in process of alienation, during the German régime, and



AN OLD BUSHMAN (KLIP KAFIR), OTIJWARONGO REGION

3,967,000 hectares have been disposed of since the country was taken over by the Union Government. Land settlement by the present administration was only commenced in 1920, and 200 settlers a year have since been placed on the land. The average price of pastoral land in accessible areas is about three shillings an acre. The major portion of this country is still unsurveyed, but in due course all these vacant areas no doubt will be exploited. Experience has shown that certain areas which were not

country acquired by the Empire in this part of Africa.

"The southern belt, comprising Warmbad, Keetmanshoop, Aroab, Bethanie, Gibeon and Maltahöhe, is mainly suitable for sheep farming. These districts have an arid climate, and are similar in all respects to the districts of the north-western Cape. The veld consists mostly of small bush. The rainfall averages from 4 inches to 6 inches annually, falling from February to April in the form of thunder showers. The farms



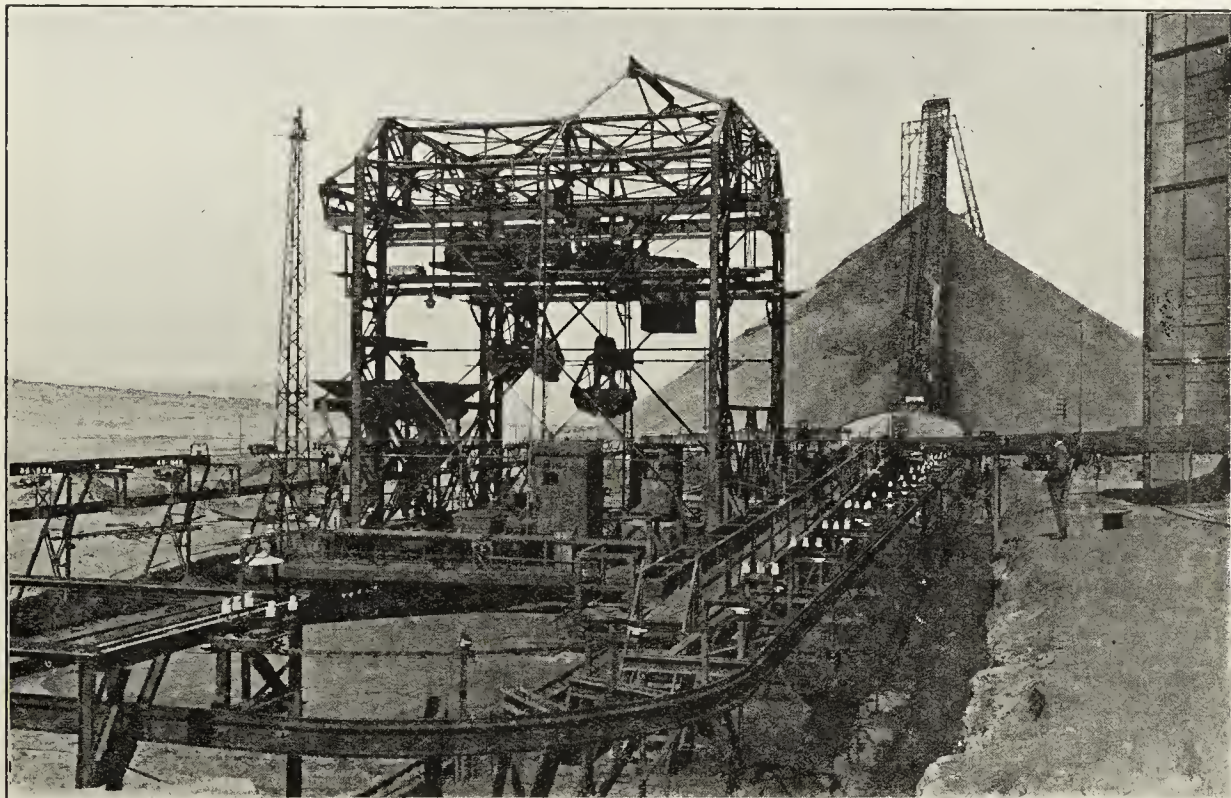
A NATIVE VILLAGE, NEAR OTAVI

surveyed by the late German Administration have been reported to be very excellent, and on survey by the present Administration there has been no difficulty in allotting these lands. Particular reference may be made to the Gobabis district.

The whole of South-West Africa is divided for administrative purposes into 17 districts, and the following particulars (abbreviated) of the different areas, taken from an official publication of the Union Government, will give some idea of the value of the

are necessarily large, being from 10,000 to 20,000 hectares. Water is obtained by boring.

"The central area, comprising Rehoboth, Windhoek, Okahandja and Gobabis, is considered very suitable for mixed stock farming, as well as for a certain amount of agriculture. These districts are well grassed and timbered, and offer excellent facilities for cattle. The grass is fairly heavy, and on this account the farms do not as a rule exceed 5,000 hectares in extent. Parts of



A DIAMOND MINE AT KOLMANSKOP
General view of the Dumping Plant



A COPPER MINE, TSUMEB

Photos, South African Rlys.

Rehoboth, Windhoek and Okahandja are hilly, but the veld is of excellent quality, and as a rule there is a fair supply of large trees, heavy bush and scrub. Gobabis district is flat country intersected by grass glades and belts of fine camel thorn trees, and so-called yellow-wood trees. Maize can be grown in favourable seasons in the northern portions of Gobabis district, and in the sand veld portion of Okahandja district.

"With the exception of Windhoek and parts of Okahandja, water will be found at quite a reasonable depth within the central area of the territory. In Windhoek district and the part of Okahandja referred to, the contour generally lends itself to the construction of storage dams, which, even with a low rainfall, gather water, as the run-off is considerable. Boring has recently been successfully undertaken on farms along the Elephants River, Windhoek district, supplies of from 8,000 to 27,000 gallons per day being obtained.

"The rainfall in these districts varies considerably; Rehoboth averages 7 inches per

annum, Windhoek 12 inches, Okahandja 14 inches, and Gobabis $12\frac{1}{2}$ inches to 14 inches in the southern portion of the district and 18 inches to 22 inches in the northern portion."

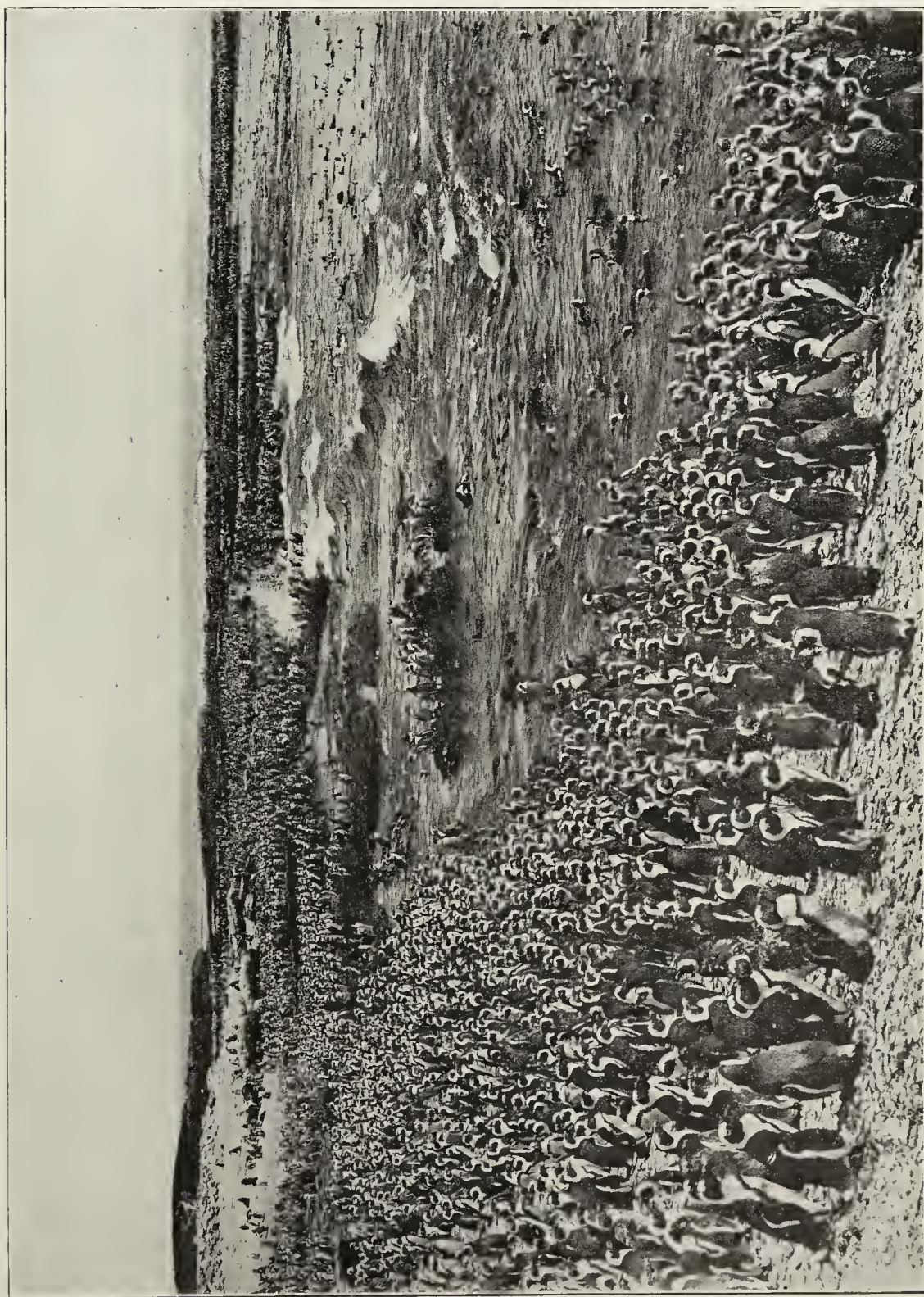
The northern area, comprising the districts of Karibib, Omaruru, Outjo, Otjiwarongo and Grootfontein, varies considerably. Parts are contiguous to the Namib Desert, and are subject to severe droughts. The rainfall varies from $2\frac{1}{2}$ to $12\frac{1}{2}$ inches. They are mostly cattle ranching districts, and in places there are large forests of mopane.

RIVERS AND MOUNTAINS.

There are *practically* no perennial streams in South-West Africa, and in most parts surface water is non-existent or very scarce, but, generally speaking, water can easily be obtained in sufficient quantities for stock by boring or by the construction of dams. Along the Auob Valley, in the Gibeon district, artesian water is found at depths varying from 280 to 350 feet, some boreholes yielding up to 750,000 gallons per day.



FLAMINGOES, SWAKOP RIVER



A BIRD COLONY, HALIFAX ISLAND, SOUTH-WEST AFRICA

Among the interesting features of this country may be mentioned the wild ostrich, which is to be seen everywhere. Prior to hostilities, the German farmers were beginning to import ostriches from the Union in order to grade up with the wild birds. It is impossible to say what success was achieved, as practically all the imported birds are to-day roaming at large.

On the upper reaches of the Orange River, which forms part of the southern boundary of South-West Africa, are the

for 70 miles before it finally disappears into the sand.

There are quite a number of mountains in the territory, including the Anas Range, a little to the south of Windhoek, which has peaks up to 8,148 feet; Omataka, in the north, 8,790 feet; the Gansberg, 7,662 feet, in Great Namaqualand; the Khomas Highlands, near Windhoek, 6,000 feet; the Onyati, 7,198 feet; the Chankaib, near Luderitz, 3,520 feet; and Geitsi Gubib, the great extinct volcano near Berseba.



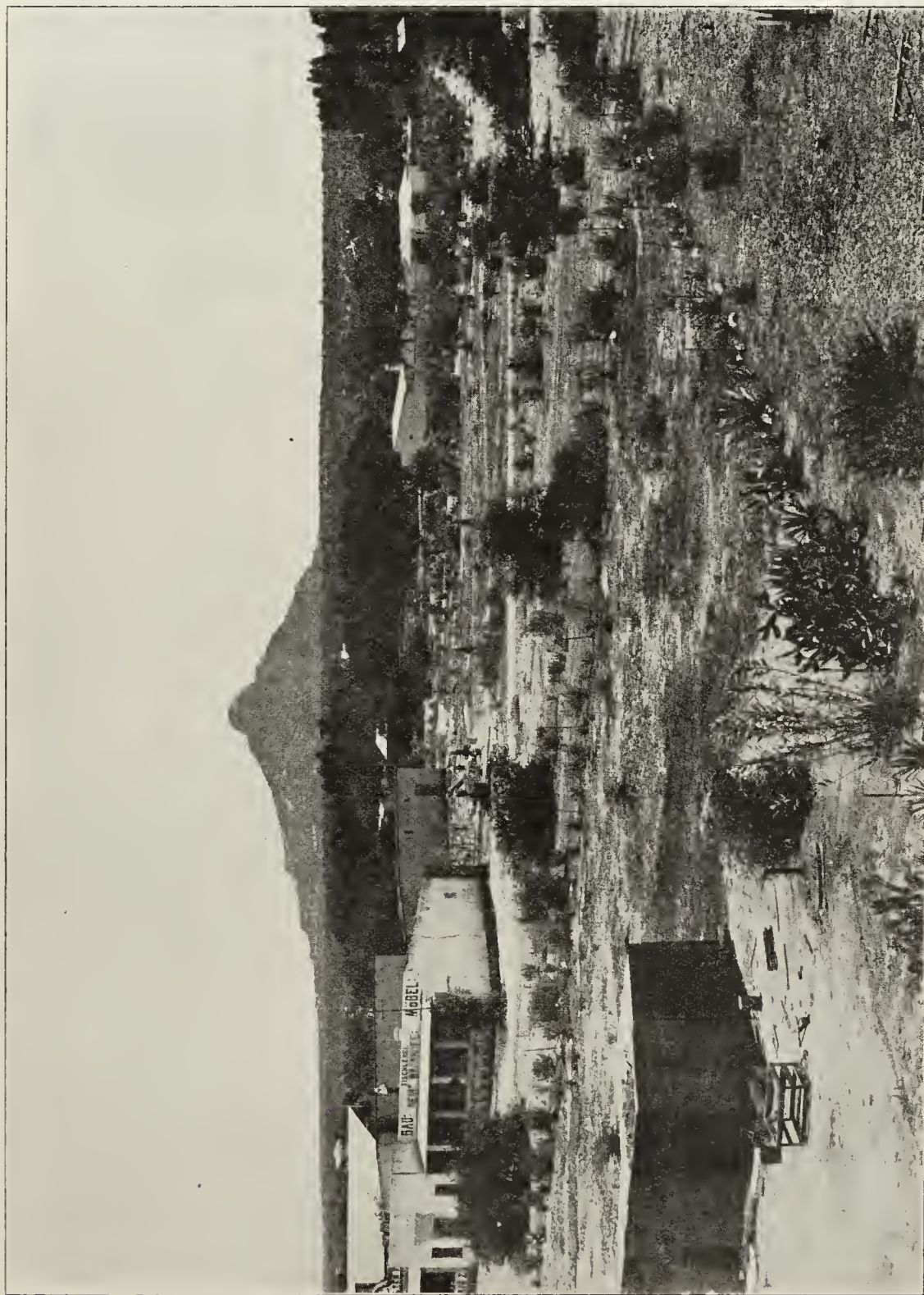
SPINELESS CACTUS, NEUDAAM, SOUTH-WEST AFRICA

Great Falls. These are twice the height of Niagara. This stream, together with the Okavango and Cunene—on the northern frontier—are the only perennial streams in the territory.

Perhaps the greatest discovery of artesian water in the whole of Africa has been made along the Auob River, where sufficient has been found at a reasonable depth to convert what was formerly a dry river bed into a stream of considerable size, and which runs

MINING.

Although some wide-spread mineral surveys have been made, comparatively little actual mining work has so far been carried on, notwithstanding the known mineral wealth of the territory. An exception has been the case near Luderitz, where diamonds were first discovered in 1908. This find was followed by feverish speculation in Germany, and during the six following years stones to the value of about £9,000,000 were recovered.



A SETTLEMENT IN SOUTH-WEST AFRICA

Photo, South African Rlys

All the important German companies have been bought out by a British combine. An electric railway now runs from these fields to Bogenfels, 70 miles to the south. The value of the average annual production of stones, which are found on or near the surface, is £1,900,000. A considerable portion of the Government revenue from this territory is provided by the royalties on diamonds.

"The stones have been found on the sands of the coastal desert along a stretch of shore of 270 miles, extending from Conception Bay to the Orange River. The richest section lies south from the Orange River for a distance of sixty miles.

"The diamonds are usually found in the thin surface deposit of sand gravel, but are sometimes discovered in lower deposits of sand to a depth of fifteen feet. The sea water is used for washing purposes. New discoveries of 'fields' are made from time to time and the life of the industry promises to be long and profitable. As a rule the stones are small, but individual gems have been recovered up to a weight of thirty-five carats. They are of good colour and realise high prices."*

Copper is being largely worked in the Tsumeb and Grootfontein districts. The principal mine is in the former region. The average value of the production is £700,000 a year. It is the most successful base mineral mine in South Africa. Coloured marble quarries are in operation at Karibib, and tin, gold, lead and iron are known to exist.

The principal big game regions are in the north and north-west, but kudu, gemsbok and eland exist in all parts. Along the banks of the Cunene and Okavango Rivers elephants, rhinoceros and giraffes abound, while in the north-western districts lions are plentiful.

NATIVE RACES.

The principal native races are the Hereros, a wandering pastoral people greatly reduced in numbers by the German-Hereros War; the Hottentots, of the arid southern regions; the Bushmen, who are nomadic hunters; the Agricultural Ovambos, of the northern territory (largest race); the Bastards, or half-breeds (Europeans and Hottentots), who came from Cape Colony in 1855-75, and

now reside mostly in the Rehoboth districts, numbering about 5,000; and the Berghdamaras, of the northern region.

FINANCE.

Under German rule the administration of this territory received an Imperial subsidy, which, in the year 1907, amounted to 3¼ millions sterling, and the ordinary revenue then totalled about £250,000. In subsequent years the ordinary revenue and expenditure increased, and the subsidy was considerably reduced. The revenue and expenditure during recent years average about £1,000,000, and £800,000 respectively. The war expenditure of the Union of South Africa during the year 1915-16, principally on account of the South-West African Campaign, was about £11,000,000. The average annual values of the imports and exports are approximately, £2,500,000 and £3,000,000.

Education, since the occupation, has made considerable progress, about 126 Government European schools have already been established. The number of pupils attending these establishments is approximately 3,000. There are also about 60 schools for native children. Cable communication with overseas countries is maintained *via* Cape Town, although there is a cable station at Swakopmund. The length of telegraph line in the Protectorate is about 4,500 miles, and there is an efficient postal service.

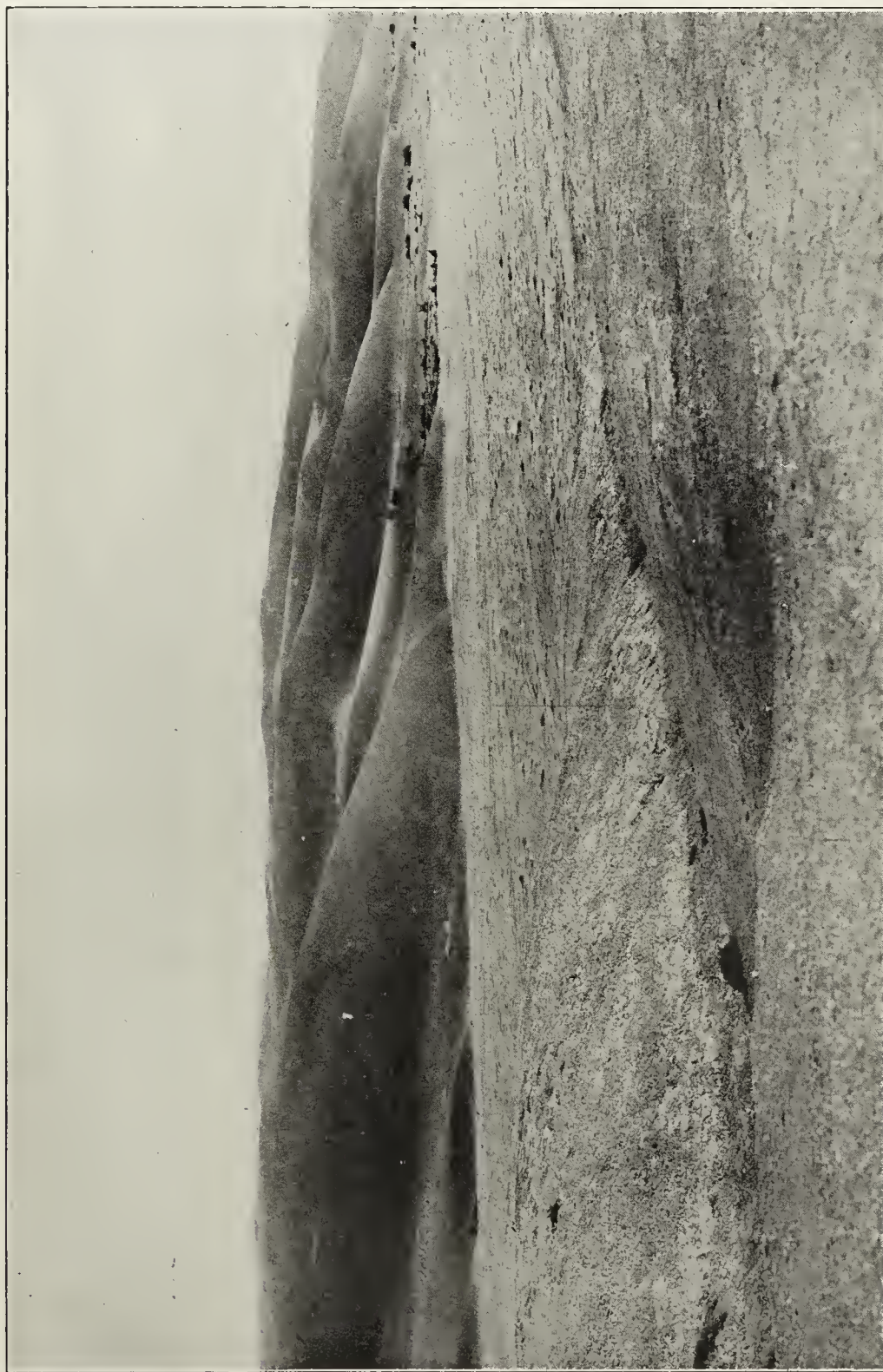
A whaling industry has been established on the coast near Swakopmund, several hundred being captured each season.

SETTLEMENTS.

Windhoek, the Government headquarters, is situated in the central zone, 180 miles inland from Swakopmund, and is a prettily laid-out little European town with a decidedly German colonial atmosphere. It is in telephonic communication with Walvis Bay and the principal administrative centres of the Protectorate.

The white population of the capital number about 4,000. It has electric light, a Zoological and Public Garden, a street railway service, and hot water service from natural springs, which is laid on to most houses. The mean annual temperature is about 67 deg. F., and the rainfall 15 inches. The principal ports, other than Walvis Bay—

* "Sidelights on South Africa."



A DESERT SCENE IN SOUTH-WEST AFRICA

Photo, South African Government

which is in Union territory—are Swakopmund, a healthy little seaside settlement with a population of just over 1,000 Europeans, and Luderitz Bay, with a white population of 1,010. The inland settlements are at Keetmanshoop (1,026 whites), Aroab, Gibeon, Bethanie, Gobabis, Grootfontein, Karibib, and about seven other districts.

TRANSPORT.

South West Africa is connected to the Union Railway system by a line from De Aar

In addition to these main standard gauge lines, which have a total length of over 1,000 miles, there are 339 miles of narrow gauge track being worked as branches from the trunk system. The principal section runs from Otavi to the copper district of Tsumeb, 250 miles; and branches extend from Otavi to Grootfontein (57), and from Outjo to Otjiwarongo (46). In addition, the privately-owned lines have a length of 99 miles. There are thus two alternative routes into South West Africa: (1) by



PEACE STONE, KORAB

Photo, South African Government

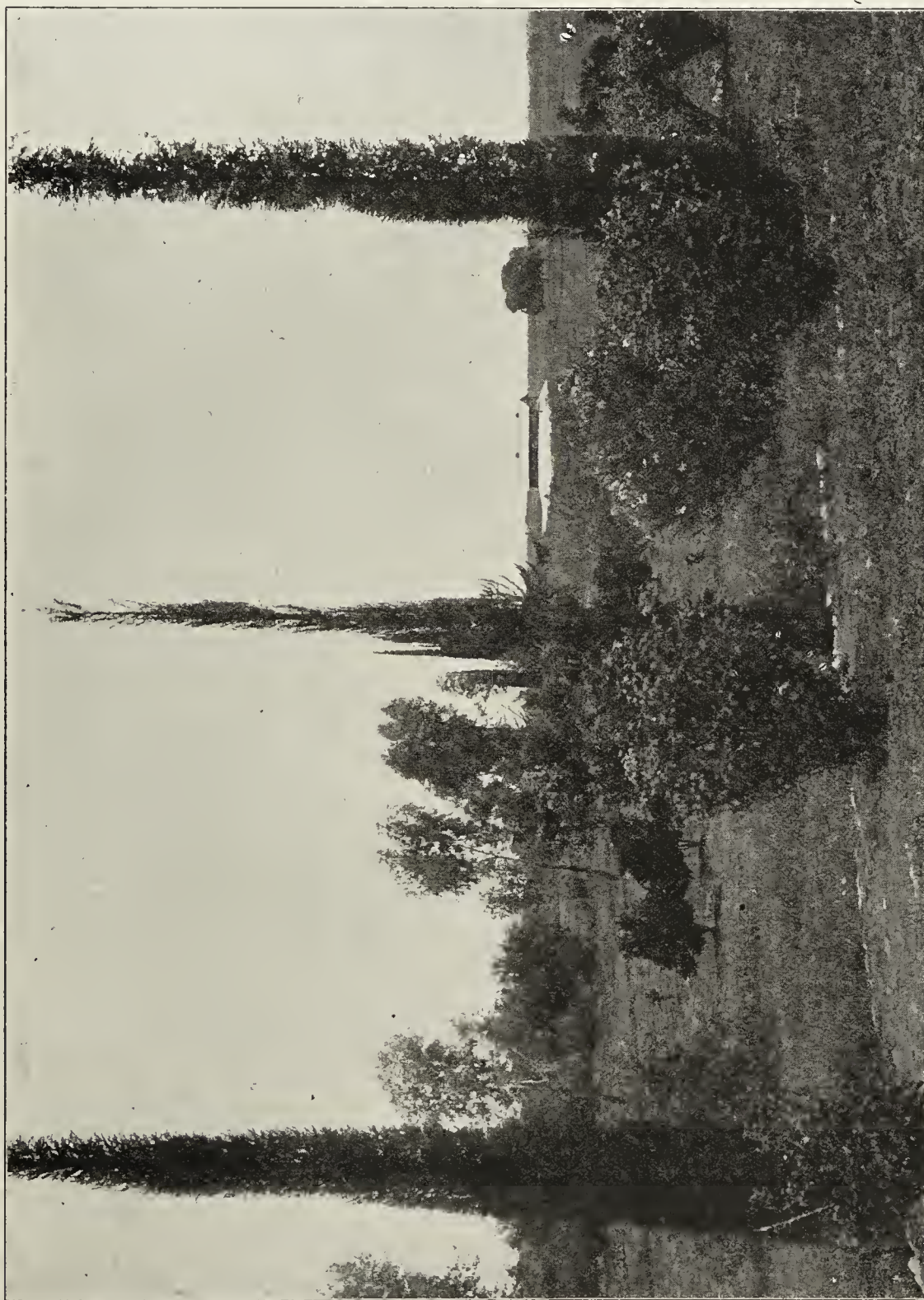
" This marks the place where hostilities terminated in South-West Africa, on 9th July, 1915 "

Junction (see UNION OF SOUTH AFRICA) to Nakop, on the Protectorate border, 344 miles, and from this point to Karibib (657), Swakopmund and Windhoek (240) and a branch to Walvis Bay (20). From this last-named port steamships run regularly to Cape Town. There is a branch from Sechein to Luderitz, 197 miles. There is also a branch line running from Windhoek to Witvlei, 119 miles.

steamship from Cape Town to Walvis Bay and thence by railway, or (2) by railway from De Aar Junction.

WALVIS BAY.

Walvis Bay has developed into the premier port of South-West Africa. In 1914 it was a British possession—a tiny dot in the long coast line then owned by Germany. No railway connection then existed with Swakop-



Photo, South African Railways

RIETFontein Farm, South-West Africa

mund and the interior. This isolated outpost at that time consisted of but a few shacks at the end of a wooden jetty. Walvis to-day has several thousand inhabitants and is fast growing. Railway communication came in 1915, and a new wharf, 1,500 feet in length, has been constructed. A deep water channel has been dredged from the bay to the wharf, the making of which involved the removal of 4,000,000 cubic yards of soil. Coincident with these extensive dredging operations, the foreshore, to the extent of thirty-three acres, has been reclaimed, which area is being utilised for general railway purposes. The amenities of civilisation are steadily being improved with the growth of the port; an adequate water

supply has been laid on from Rooibank, twenty-one miles distant, and a wireless station has been installed. Walvis Bay has developed to the detriment of Swakopmund, the last-named being an open roadstead where the full force of the wild south-west gales are felt. Walvis has the protection of the land in this direction, and in the natural course of events—as the best harbour on the territory's seaboard—must continue to grow. When the railway through Windhoek and Gobabis eventually joins the main line running north to Rhodesia, considerable traffic—bound for Europe—will surely find shipment at Walvis.* A large cold storage plant has been installed.

*"South African Railways and Harbours Magazine."



TOGOLAND AND CAMEROON

IN the year 1884 Germany acquired the small West African Colony of Togoland, including Porto Seguro and Little Papo, lying between the British Gold Coast (*q.v.*) and French Dahomey. This territory was occupied by British and French forces on August 26th, 1914, after a campaign lasting only three weeks. In 1920 the country was divided into a British and French sphere. The former has an area of about 13,000 square miles with a population of about 200,000. It is administered as a part of the gold coast, and none of the 28 miles of coast line is included in the British sphere.

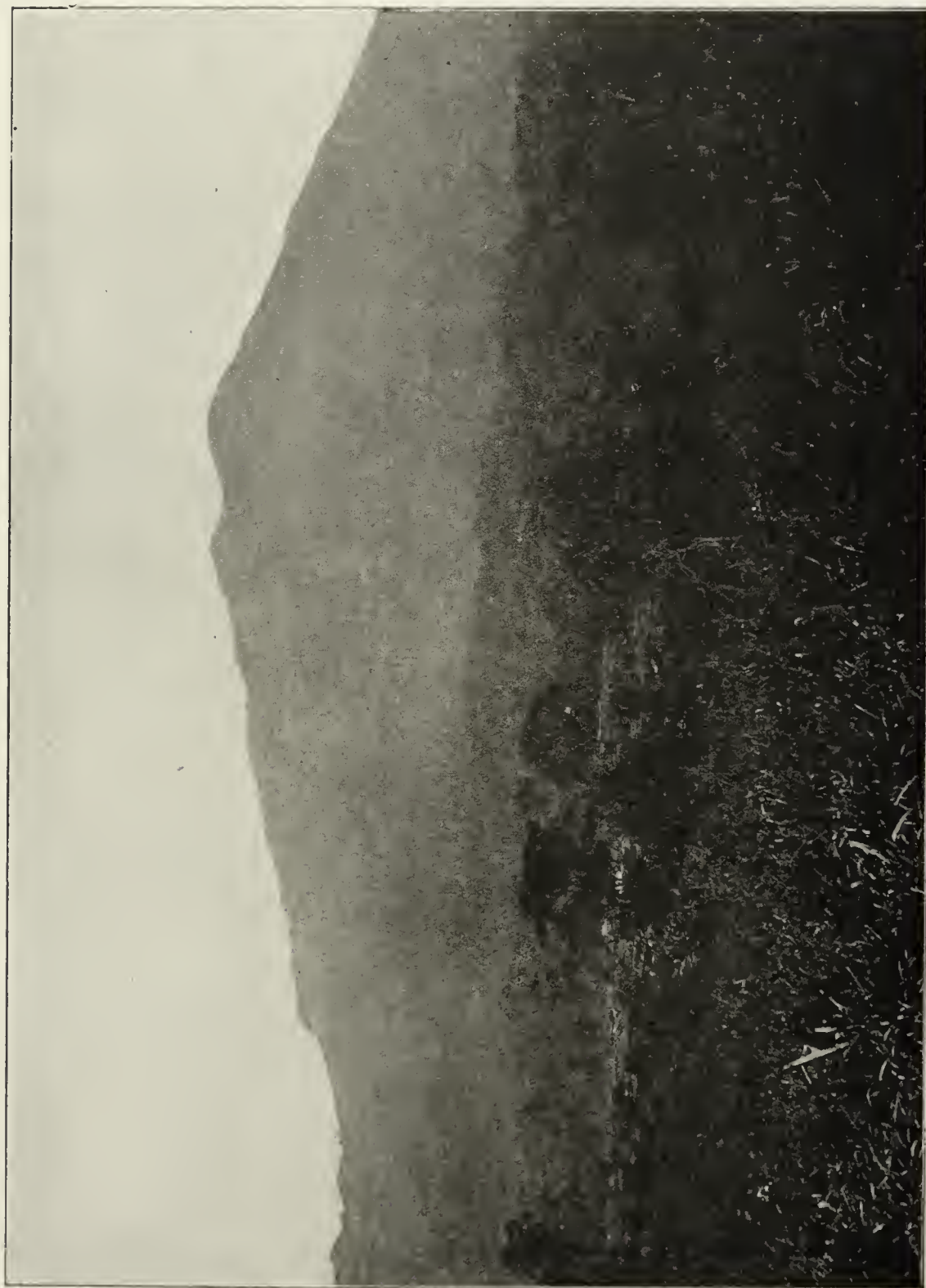
The coloured population belong to many tribes, but are mostly negroes, although they differ greatly in mode of life, degree of civilisation, and general characteristics. From the palm-fringed and sandy coast line up to about 120 miles inland the country and people may be described as developed and more or less civilised. There are in this region many good roads, with Dâk bungalows for the accommodation of travellers, telegraphs, post offices, and a main railway line : Lome to Atakpame, 110 miles, with two branch lines. From rail-head to a point about 100 miles further north, near the French Government station of Sokode, the country is but little developed and native warfare is not unknown. The Kon Kemba people inhabiting this region, a portion of which is in the British Empire, are fierce looking, go about fully armed, and are generally in a state of semi-nudity. There are no railways, few plantations, and the general condition may be described as semi-civilised,

although there is a good main road, with rest houses every 15 miles from railhead at Atakpame to Sokode. Beyond this Government station to the borders of the French Sudan lies a stretch of country, about 90 to 100 miles broad, which is nominally under the control of an official with headquarters at Yendi (British) near the River Oti, where a trade school has recently been opened, but the Kabu and Taberma mountaineers, the Tsehokossi and Gourma people are extremely backward and somewhat hostile to white men. The whole of this northern area has yet to be developed and civilised.

The climate of the low palm-bordered coast, which extends for about 32 miles from the Gold Coast to French Dahomey, is very unhealthy for Europeans. Inland the country becomes more hilly with a few streams. Here the climate is more suitable for the temporary residence of white men. It is a country of forests and dried-up plains. In the extreme northern sector, around Nangu, the physical characteristics begin to blend with those of the Sudan ; sandy wastes alternate with stretches of coarse grass and clumps of dry-trees. The climate here is far more healthy, and it is estimated that there are nearly 20,000 head of cattle in this region. (See GOLD COAST COLONY, of which British Togoland forms part.)

Cameroon

The German Cameroons had a coast line of about 200 miles, and were situated on the Bight of Biafra, West Africa, between British



CAMEROON MOUNTAIN

Once a portion of German West Africa and now within the sphere of British Nigeria. The native village can be seen in the left-foreground

Photo, Elder Dempster Co. Ltd.

Nigeria and the French Congo. There were really two territories in this erstwhile German Colony; old Kamerun, acquired in 1884 and New Kamerun, transferred from the French Congo in 1911. The two combined had a total area of about 191,000 square miles with a white population, mostly Germans, of 1,900, and a native population, composed of Bantu negroes along the coast and Sudanese negroes in the more distant interior, numbering in all about 2,500,000. In 1913 the frontier between Nigeria and the Cameroons was settled.

This Colony was finally conquered by British and French forces in February, 1916, and New Kamerun, which was the territory ceded by France under the Franco-German Treaty of 1911, was administered by the Governor-General of French West Africa. Old Kamerun was placed under the Governor of British Nigeria. In 1920 the country was definitely divided into a British and French sphere. The British section, which now forms a portion of Nigeria (*q.v.*) has an area of about 28,000 square miles.

The coastal belt, from the Rio del Rey to Victoria, is somewhat low-lying and unhealthy, but the soil is extremely fertile. Further inland comes Cameroon Mountain (13,370 ft.) and beyond this the country is covered with dense forest growth for many miles. Next comes open grass lands interspersed with sandy wastes which extend to the shores of Lake Chad, the great inland sea of West Central Africa which is generally supposed to have no outlet.

In the fertile areas cocoa, rubber, vanilla, pepper, ginger and cloves are largely grown, and the forests are rich in ebony and other hardwoods. There is a considerable trade in ivory and palm-oil, but little mining has so far been carried on, although gold, iron and tin in payable quantities have been found. In the more healthy regions of the interior cattle-breeding is an important industry.

The principal town is Buea, on the slopes of Cameroon Mountain. During the German dominion this was the capital of the whole Protectorate, but Duala, now in the French sphere, was the more important commercial

town and port, with a population of 22,000. Buea is connected with Victoria, the chief port, by a short railway line. There are several good main roads connecting the coast towns of Victoria and Rio del Rey with Buea and the inland trading stations. The telegraph system has been extended to include nearly all parts of the country in which there are European residents, and a cable links this portion of Nigeria with the outer world *via* Bonny (*q.v.*).

Victoria is a beautiful port with an imposing entrance. Far away in the distance can be seen the Island of Fernando Po, while on the land side, the Cameroon Mountains tower up into the brazen sky. The entrance to the harbour is flanked, first by forest-clad islands and then by a natural breakwater of rocks. There are some fine botanical gardens, well-kept roads and neat bungalows. In the immediate vicinity of this port tin is known to exist, but so far no mining has taken place.

The journey by train from Victoria to the little mountain capital, Buea, is full of charm and interest. Although only a few miles the line winds through jungle, and up the steep slopes of the Cameroons, to where rose gardens, strawberry beds, gooseberry bushes and almost temperate foliage take the place of the highly tropical coast jungles, swamps and lagoons. From this it will be apparent that Buea is a health resort. It is, in fact, *the* health resort of the whole of West Africa. The houses are provided with fire-places, and the beds with blankets, for although the days are hot the nights are quite cool and refreshing. It is the one spot on this otherwise feverish coast which is beautiful and yet comparatively healthy. There is a hospital for cases which are carried up from the great Equatorial forests around, and quite a number of fine bungalows and administrative offices. In the last days of the German occupation the government offices were moved up to this hill station from the more populous and important town of Duala. Cocoa growing has become one of the chief industries since its inclusion within the British sphere. (See *Nigeria*, etc.).

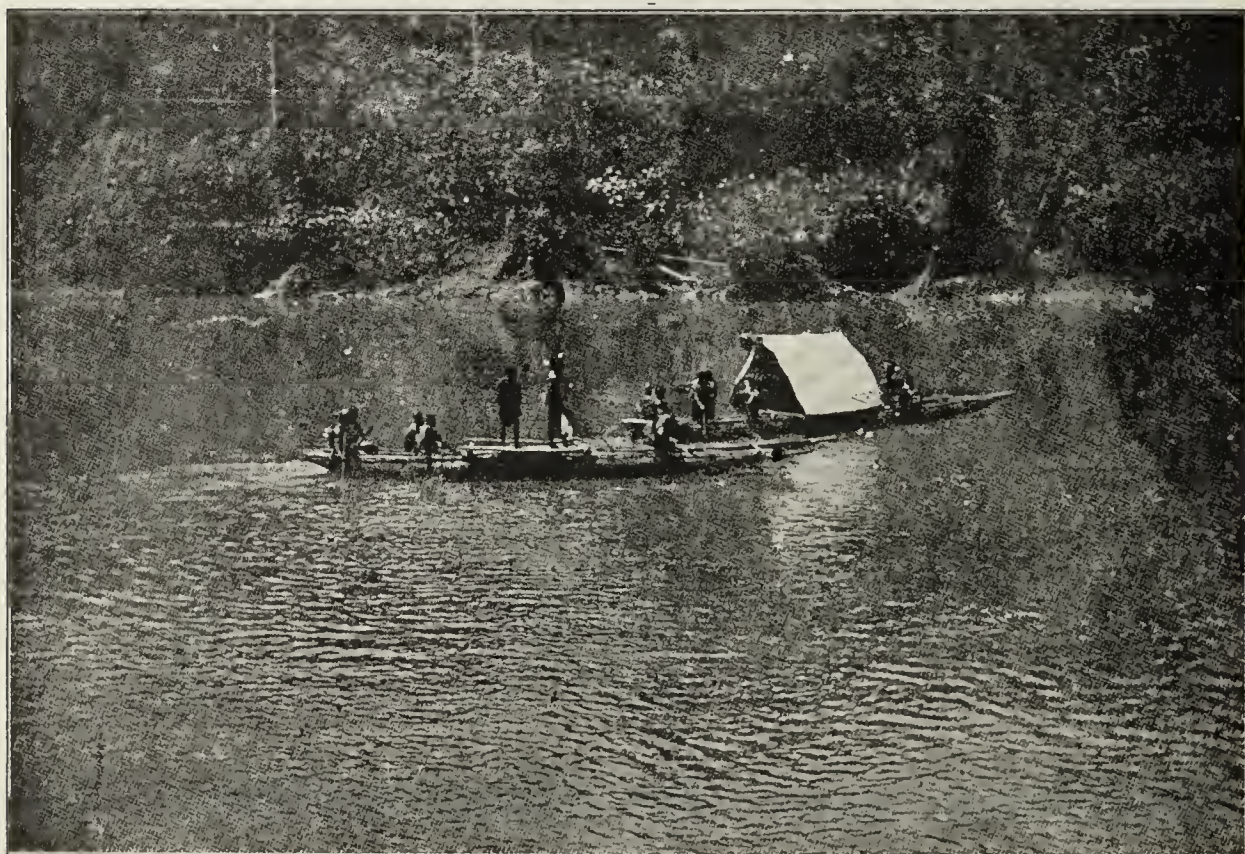
NEW GUINEA

AND THE

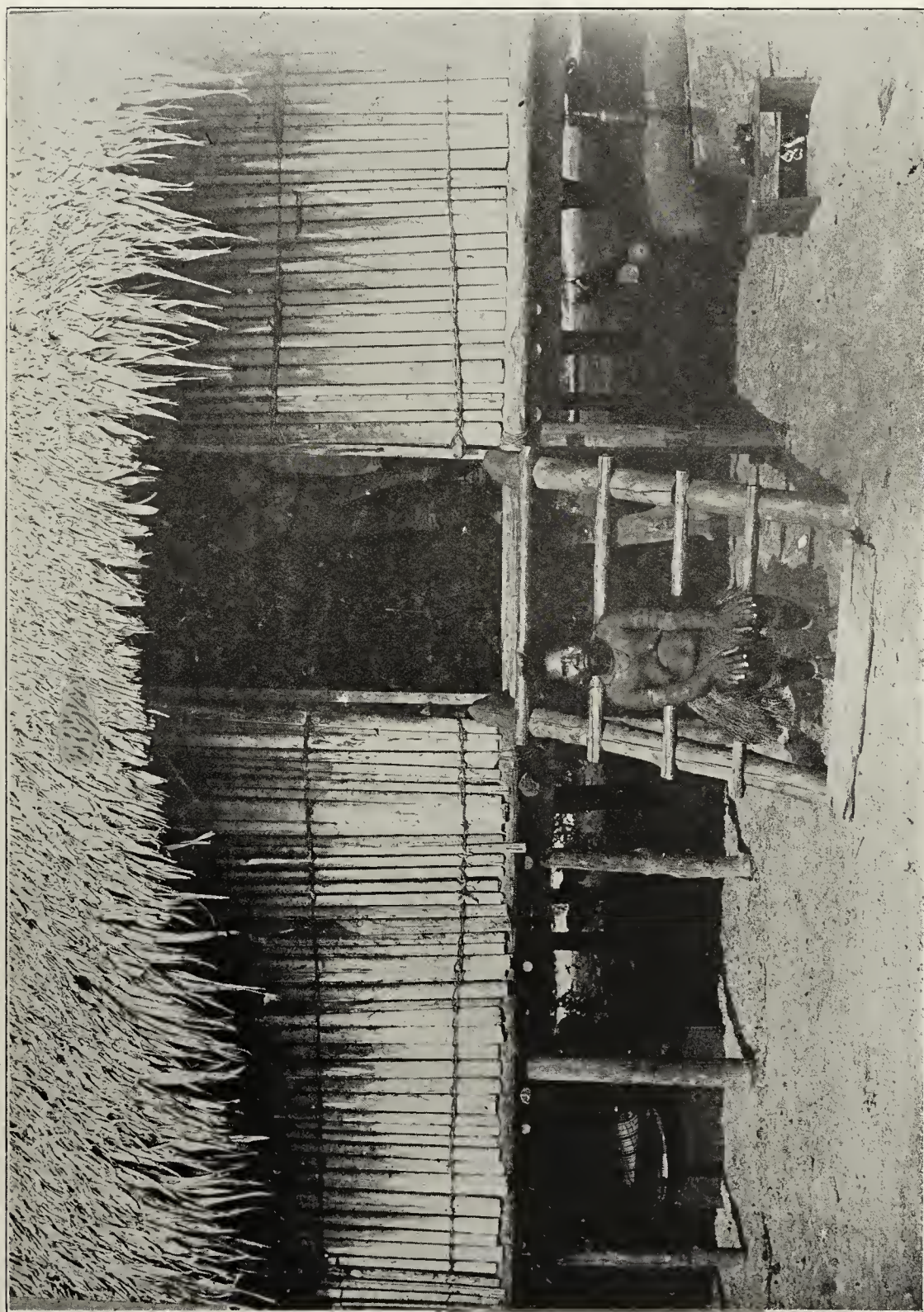
WESTERN PACIFIC

ALL the Western Pacific Islands, included in the German Protectorate (except Samoa) were governed from Rabaul—the chief town of the Island of New Pommern in the Bismarck Archipelago (now

called New Britain)—and the name by which this scattered protectorate was known was “German New Guinea.” The sphere in these seas was divided into seven districts, and included (1 and 2) Kaiser Wilhelm’s Land,



NATIVE CRAFT ON A PAPUAN RIVER *Photo, Australian Government*
(Kaiser Wilhelm's Land is now administered under Mandate by the Commonwealth of Australia)



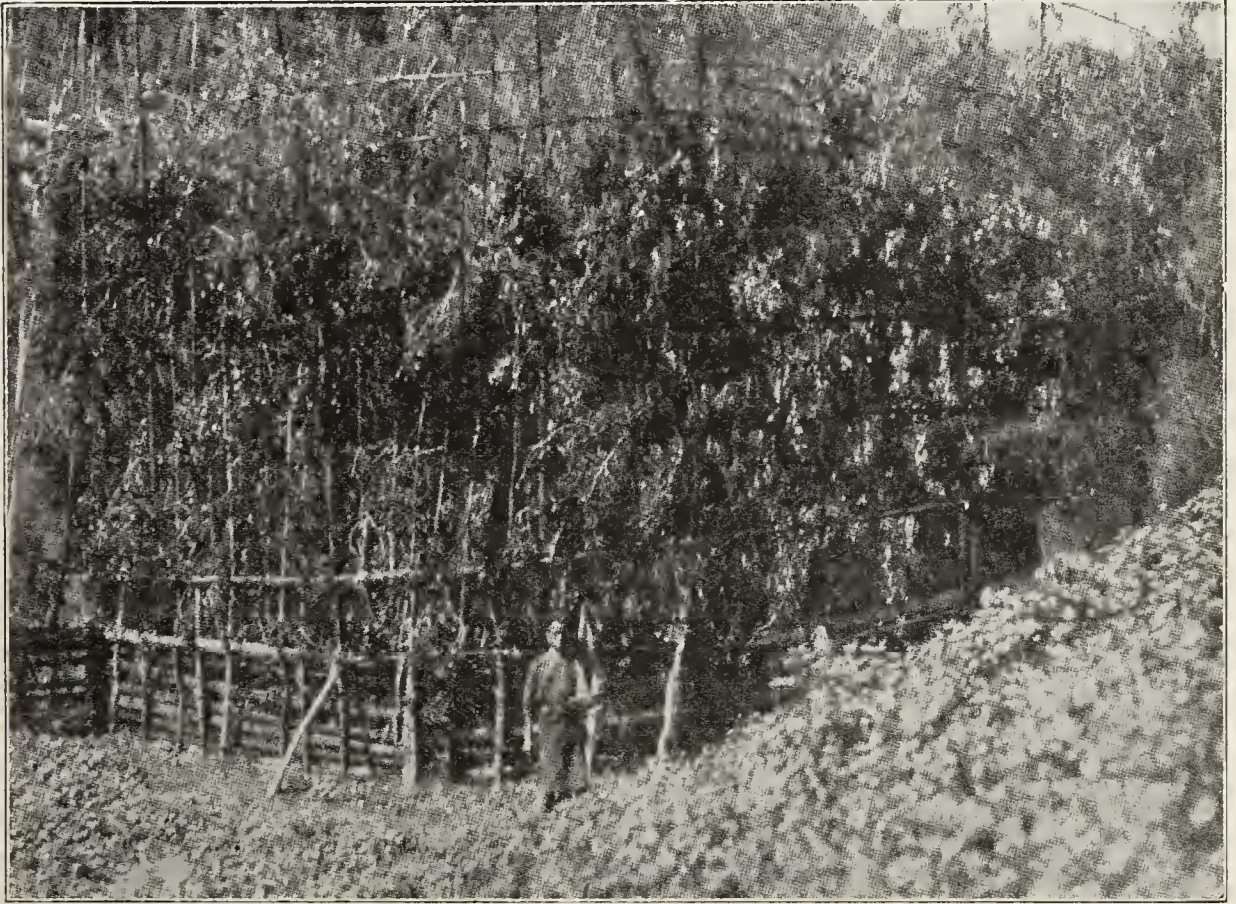
A PILE DWELLING IN PAPUA

acquired in 1884, which adjoined the Australian Dependency of Papua (*q.v.*), and had an area of 75,000 square miles, with a native population of about 300,000; divided into two administrative districts; (3) The Bismarck Archipelago, also acquired in 1884, lying between Long. 140° and 154° E., and extending from the Equator to 8° S. Lat., with a total area of about 16,000 square miles and a native population of 52,000, including the little group known as the Admiralty Islands; (4 and 5) The Caroline, Pelew, and Marianne (or Ladrone) Islands, acquired from

Spain in 1899 (Guam, the largest island in the latter group belongs to the United States) comprising some 500–600 small islets with a native population of 60,000, and divided for administrative purposes into (4) the Eastern Carolines, with headquarters at Penapé, and (5) the Western Carolines, including the Pelew and the Marianne groups, with Yap as the seat of government; (6) The Solomons, acquired in 1886 (part of this group was transferred to Great Britain in 1889—see *Fiji* and *New Zealand*), with a total area of 3,500 square miles, and a native population



A JUNGLE VILLAGE IN CENTRAL NEW GUINEA



A "PILITA," OR NATIVE PRISON, IN WHICH JUVENILE OFFENDERS ARE CONFINED

of 46,000. The German administrative headquarters were at Kieta on the Island of Bougainville ; and (7) the Marshall Islands, twenty-four in number, acquired in 1885, with a population of about 15,000. The seat of Government was on the Island of Jaluit ; and (8) the German Samoan Islands, Savaii and Opolu, with the seat of Government at Apia in the former island, made a separate colony. These were acquired from Great Britain in 1899, and have a total area of about 1,300 square miles, with a native population of 42,000.

Territory of New Guinea

The first German settlement in this portion of New Guinea was at Finschafen, on the south-eastern frontier, near the Australian territory of Papua, or British New Guinea.

Three other stations were formed, one at Hartzfeldt, one at Konstantine, and the

district headquarters at Frederick Wilhelm's Haven (renamed Madang). For eight years, from 1884, Kaiser Wilhelm's Land was administered by the German New Guinea Company, but in 1899 the territory was taken over by the Imperial Government and administered as a Crown Colony through a Governor appointed by the Emperor. There was no Legislative Council or other local governing or advisory body. On the outbreak of the Great European War, Australia despatched an Expedition to Kaiser Wilhelm's Land, and officially occupied it on September 12th, 1914 ; since which date it has been continuously administered by the Commonwealth. From its geographical position it will be recognised that the possession of this portion of New Guinea, which not only adjoins Papua (*q.v.*) but commands the northern trade routes to and from the Australian States, is of great importance to the Commonwealth and to the security of the British Empire in the Pacific.



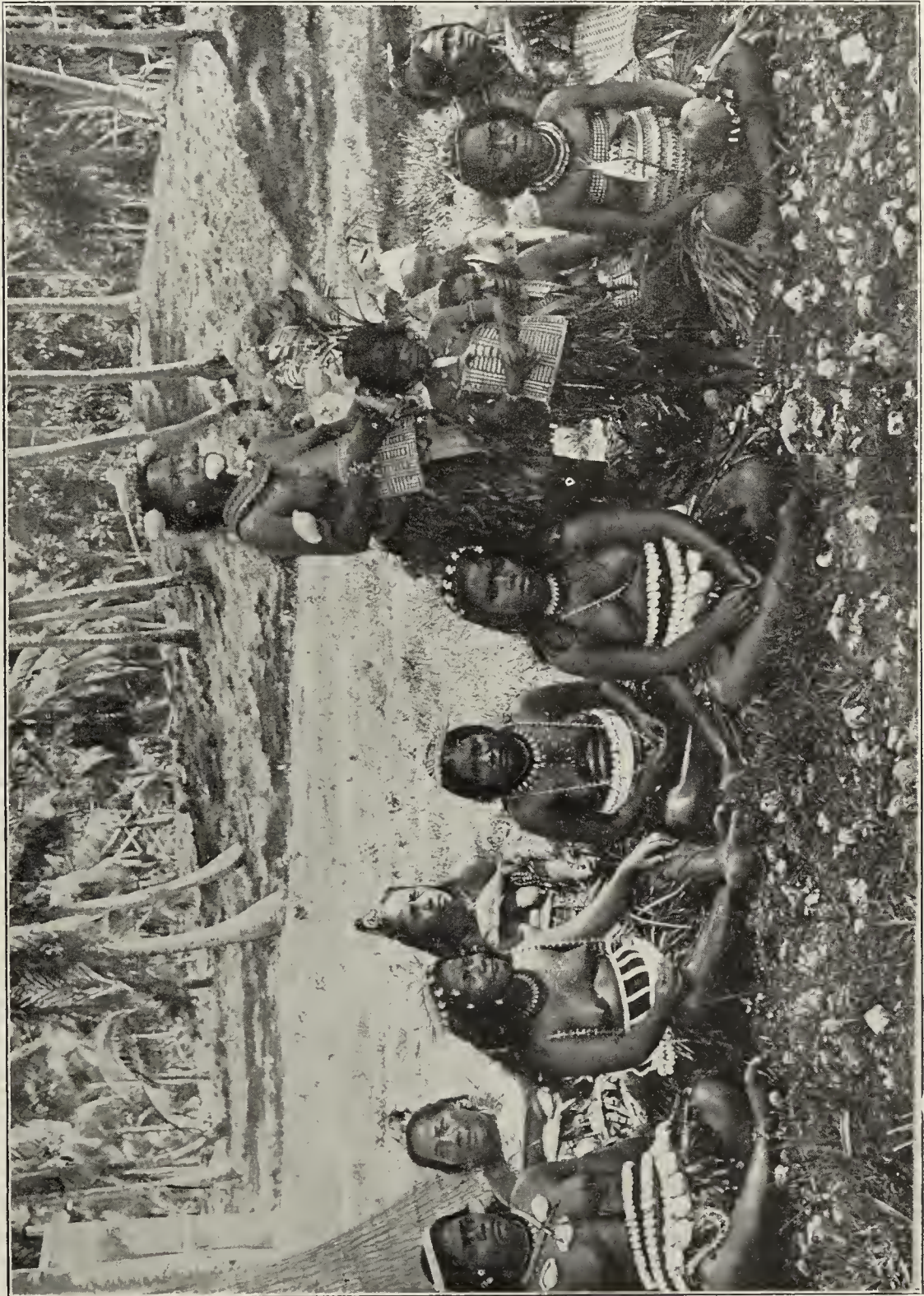
A PAPUAN GIRL WATER CARRIER
Showing grass ballet-skirt

TOPOGRAPHY AND CLIMATE.

Topographically this territory is dominated by the lofty mountain ranges running parallel with the coast plain, which varies in width from 48 to 110 miles. The interior is but little known, and is very mountainous, some of the peaks rising over 13,000 ft. above the virgin tropical forests. There are at least three important rivers, the Sepik, which rises in Dutch New Guinea, and flows through the territory in an easterly direction, which is navigable for over 240 miles; the Rasnu, which has its mouth about 19 miles east-

wards of that of the Sepik; and the Markham which flows into Astrolabe Bay.

The total area under cultivation is about 190,000 acres, of which 178,000 acres are planted with coco-nuts. Rubber, cocoa and fruit are also grown for export, with copra as the chief product. The principal foods of the natives are sago, bananas, taro, and yams, or sweet potatoes. There is considerable mineral wealth as yet unexploited because of the difficulties of transport. Diamonds have been discovered during recent years.



DANCING GIRLS, SAMOA

Photo, Harold J Shepstone.

SETTLEMENTS.

The climate is hot and unhealthy in the lowlands, and the rainfall very heavy. The principal towns are Madang, the capital, with a white population of under 300; Morobe, and Eitape, with less than 100 white people each, exclusive of the Australian military garrison and administrative officials. The headquarters of the Government are at Rabaul, in the New Britain Archipelago (*q.v.*).

NEW BRITAIN ARCHIPELAGO.

The Bismarck Archipelago has once again been given its old name—The New Britain Archipelago. The principal island of this and the Admiralty group is New Pommern, renamed New Britain, which has an area of 10,000 square miles. It is a half-moon shaped island, 300 miles in length and 51 miles in breadth. A chain of volcanoes, culminating in the "Father," 8,000 ft. high, occupies the almost unexploited interior. The chief town is Rabaul, on Simpson Harbour, which is a well-laid-out settlement with a pretty public garden, a landing stage, a wireless station, and a number of good bungalow residences. The population (resident) numbers about 820. There are several well-sheltered natural anchorages, but the only one visited regularly (twice a month) by shipping is the fine and completely sheltered Simpson Harbour in Blanche Bay. Coco-nuts are the principal products.

The second largest island of this group is New Ireland, which lies to the north of New Britain, being separated therefrom by the St. George's Channel. There is a range of mountains running through the centre of the island, but, during recent years there have been no signs of volcanic activity. The principal harbour is Nusa, on the north coast, but Kae-wieng is the chief European settlement and has about 95 white residents. Coco-nuts are the chief product. The interior is only very imperfectly known.

The principal island of the Admiralty group is Tau, or Great Admiralty Island, with administrative headquarters at Lorengau. The white residents number about 47. There are, in all, over 200 small islets more or less adjacent to the coasts of Papua, or New Guinea, all of which come within the Australian sphere and are administered by

the Commonwealth from Rabaul (see *Papua, Australia, New Zealand and Fiji*, etc.).*

Solomon Islands

The German Solomon Islands were acquired in 1886, and have a total area of about 3,500 square miles with a population of 46,000, less than a hundred of whom are Europeans. Several islands included geographically in this group, notably Choiseul and Isabel (Mahaga) were transferred to Great Britain in 1899, but Germany maintained the more important islands of Bougainville and Buka. These are now administered under Mandate by the Commonwealth of Australia.

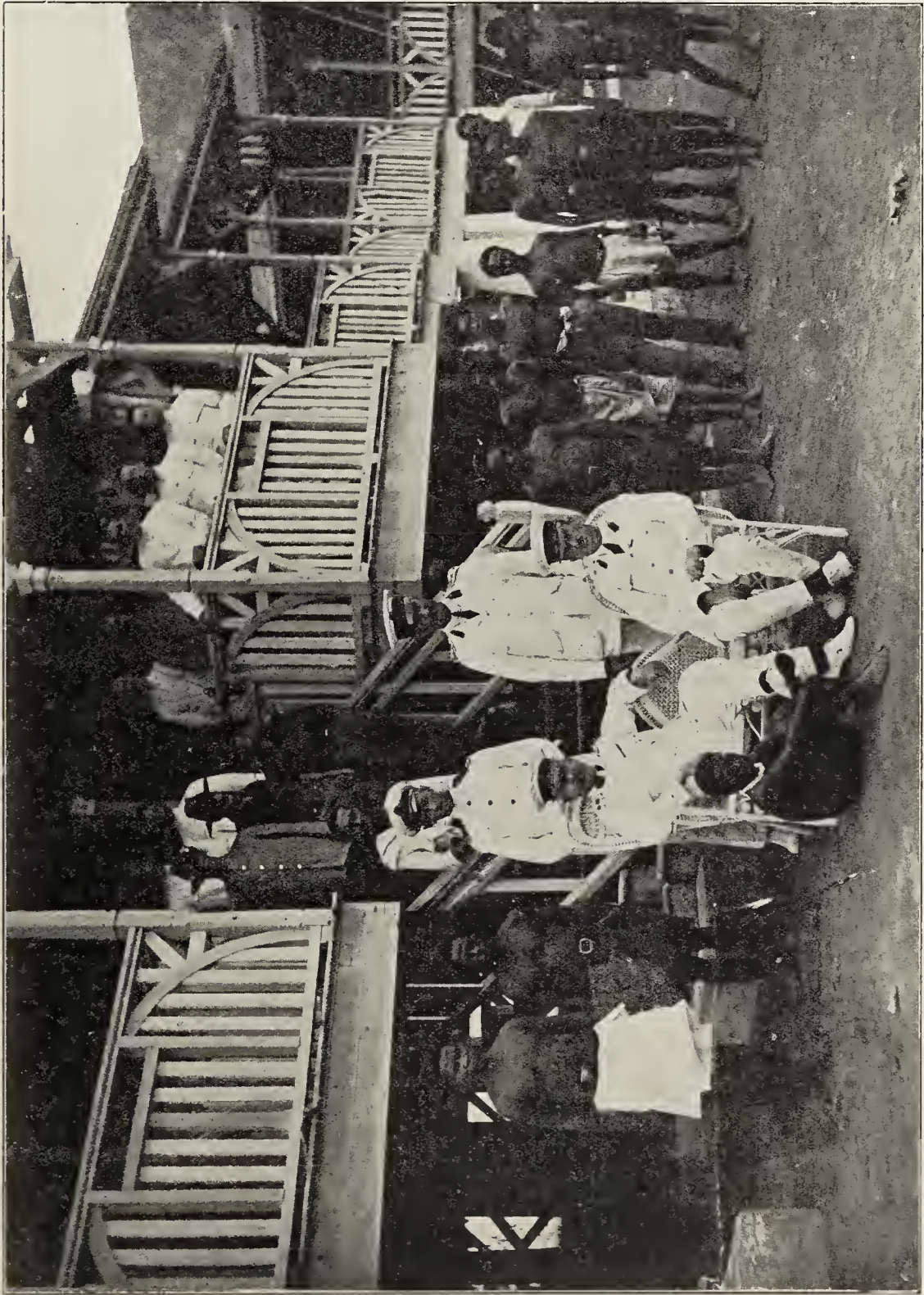
Nearly all the Solomons are both mountainous and volcanic, although most of the cones are generally considered to be extinct.

The most lofty peak is *Balbi*, in the Main Range, situated in the centre of Bougainville, which is over 10,000 ft. high, and forms a landmark for navigation among these islands. The one really active volcano, *Bagano*, also forms one of the peaks of this impressive range. Kieta, on the east coast of Bougainville, is the principal harbour and administrative station. There is, at present, but little export trade, although many of the islands are highly fertile. The Solomons may be numbered among the most picturesque of the Western Pacific Islands, many of the present generation of natives have been cannibals, and until quite recent years these islands were veiled in mystery. The southern islands of this group are known as the *British Solomon Islands* and are administered by the Imperial Government. (See *Western Pacific Islands*.)

Western Samoa and Nauru Islands

Previous to the epoch-making year 1914 Germany owned the two largest islands and several small islets in this group, while the remainder belonged to the United States. Great Britain had renounced her rights over Samoa by the Anglo-German Agreement of 1899, and Savaii, Upolu, and some of the smaller islands were formed into a German Colony, with administrative headquarters at Apia, in the island of Upolu, while the United

* Norfolk Island is administered by Australia (*q.v.*).



GOVERNMENT HOUSE, RABAUL
Capital of the New Britain Archipelago (Ex-Bismarck Archipelago)

Photo, Australian Government

States established her rights to Tutuila and other islands. On August 29th, 1914, New Zealand forces occupied Apia, and the German Islands have since been administered by that Dominion.

The area of the ex-German Colony is approximately 1,203 square miles, with a population of about 40,000, of whom 2,000 are whites and half-castes, and the remainder mostly Samoans, Melanesians and Chinese. Savaii is the largest island, having an area of over 700 square miles and 13,000 native inhabitants. Upolu comes next in order of size, being 430 square miles in area. The other islands, Manono, Apolima, Fanuatapu, Namua, Nutele and Nunlua are comparatively small and unimportant although thickly populated.

Both Savaii and Upolu are mountainous and highly fertile. There are Government and Mission schools, 100 miles of made road, a wireless station and many plantations. Apia, the seat of Government, has a good harbour, visited annually by over 60,000 tons of shipping, and there is regular steam communication with New Zealand. The Harbour of Saluafata is also situated in this island. The imports into Western Samoa,

since the British Administration, have averaged about £325,000 per annum, while the exports during the same period have totalled nearly £326,000 in yearly value. The revenue exceeds the expenditure. The German currency has been replaced by New Zealand notes and coins. Among the native population there are over 1,400 Chinese, and among the white inhabitants over 300 Germans.

The chief products of these islands are copra and cocoa. The exports of copra have an average value of £275,000 a year. Vailima, near Apia, was the home of R. L. Stevenson; and it was in the harbour of Apia—as recorded in “A Footnote to History,” that a cyclone, in 1889, wrecked three United States warships and two vessels of the German navy, while H.M.S. *Calliope* effected her escape.

The Nauru Group, with a population of about 2,000, are administered by New Zealand, Australia and Great Britain jointly. About these islands little can be said for they are only coral reefs, although there are valuable deposits of phosphates and the exports of this average about 500,000 tons a year.



MANUFACTURING INDUSTRY

TO the British Isles, the manufacturing industry is of vital importance.

About half the dense population of the Motherland lives directly *or indirectly* upon the great industries which have been built up during the past two centuries. To the Dominions and Colonies, the continued prosperity of the manufacturing industries of Great Britain is of almost equal concern, because the sparsity of their population and the vastness and richness of their territory cause them to be agricultural, pastoral and mining rather than industrial countries, and, as such, they supply a very large proportion of the raw material from which the manufactured goods are produced.

An important factor, which should always be remembered when considering the present and future conditions of the manufacturing industry of the Empire, is that there are about 400–500 millions of coloured subjects in India, Malaya, Africa, the West Indies, and elsewhere, who, for many years to come, will depend almost entirely for the necessities of civilised life on the output of the manufacturing centre of the Empire.

INDUSTRIAL CENTRES OF ENGLAND AND WALES.

The manufacturing industries of England and Wales are more extensive, valuable, and diversified than those of any other country in the world, and only a general and statistical survey is here possible. Of these industries, cotton and woollen are the most

important, and these have become highly specialised, mainly in the counties of Lancashire and Yorkshire, though the industries connected with them are widely spread over different parts of England and Wales where local advantages prevail. In Lancashire (as also in North-East Cheshire) the advantages in connection with the cotton trade are a moist climate, the proximity of coal, excellent communications, and the possession of the ports of Manchester and Liverpool. The cotton industry is old ; but it received a great impetus at the time of the Industrial Revolution, and was much advanced during the period of the Napoleonic Wars. The advantages then gained, supplemented as they have been by a fine water supply, the ease of obtaining raw material, and the skill of the operatives, have given this part of the world a lead which seems unlikely to be snatched away. In many respects, the same considerations apply to the woollen industries of Yorkshire, as well as to those of the West of England. Manufactures of iron and steel goods are too well known to need detailed accounts, and in various parts of the country articles of an enormous value are made, extending from pins and needles to armour plates, and steam engines and machinery of every description. This industry, like that of cotton during the Napoleonic Wars, received a wonderful impetus during the great European struggle of 1914–18. The production and importation of vast quantities of modern machinery



THE RAW MATERIALS FOR MANUFACTURE
Arrival of a consignment of feathers at the Port of London

and the training of thousands of new mechanics increased the possible productiveness of the iron and steel industries of Great Britain.

Shipbuilding is another industry of gigantic proportions, the chief work being done at Newcastle-on-Tyne, and other Tyne ports (South Shields, North Shields, Gateshead, Jarrow), Sunderland, West Hartlepool, Barrow, London, Birkenhead, and Hull. Owing to various economic causes, the London trade has declined. The Government dockyards are at Chatham, Portsmouth, Sheerness Devonport, and Rosyth (Scotland). There are, however, few things which can be enumerated which are not made to some extent in one part or other of the country.

The leather trade has its headquarters at Bristol, Leicester, London, Northampton and Nottingham, with outposts in other cities and towns. The production of boots and shoes alone averages 42 million pairs a year. Earthenware and china are principally made in the pottery district of South Staffordshire,

where there are not only very productive coal fields but also vast supplies of coarse clay and ironstone, the China clay being obtained in Cornwall or imported from abroad. Paper making, brewing, chemical manufacture, clothing and food products are widely-scattered industries. Lace is made principally in Nottingham and Derby.

The total number of people employed in factories in England and Wales is approximately 5,400,000, and the annual decrease during the past six years has been nearly 100,000. The total average value of the manufactured goods (wholly or partly) produced in the British Isles is approximately £2,780,000,000 a year.

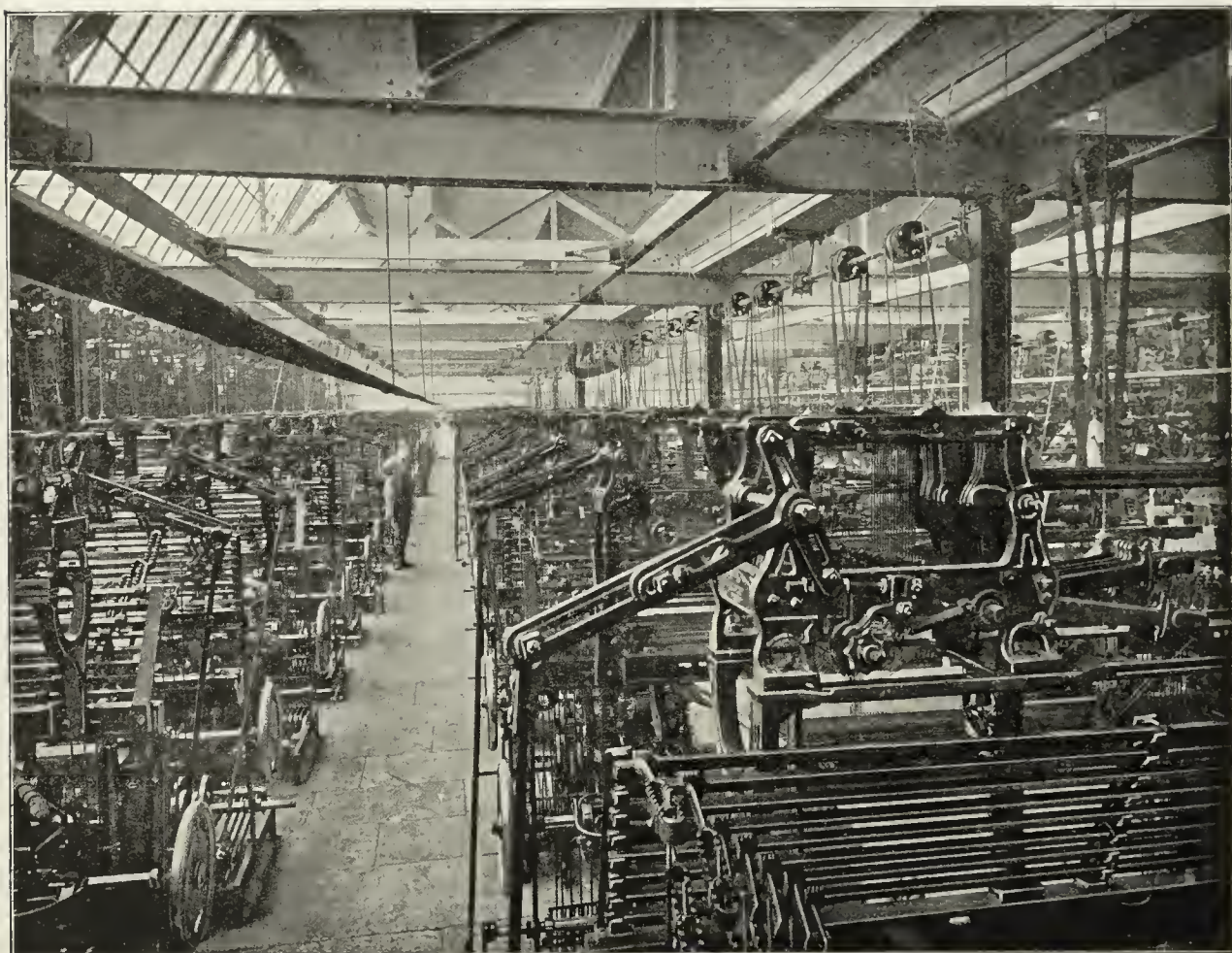
INDUSTRIAL CENTRES OF SCOTLAND.

Of the manufacturing industries of Scotland, that of iron is of high importance, and, in it, there is much specialisation. The chief towns engaged are Glasgow, Airdrie,



RAW MATERIAL
The Rubber Store, London Docks

Photo, Port of London Authority



CLOTH WEAVING

The weaving room in the works of J. Emsley & Co. Ltd., Bradford. Founded over half-a-century ago with 40 looms these works now have an output of over two million yards of cloth a year

Coatbridge, Kilmarnock, Falkirk, Hamilton, and Motherwell. Glasgow engineering works turn out locomotives, various kinds of machinery, and, in fact, practically every kind of iron goods. Excellent communications, the coal in the neighbourhood, and the easily obtainable iron ore give these centres great advantages. Shipbuilding on the Clyde at Glasgow, Greenock and Dumbarton, still ranks as the most important in the world, and some of the largest and fastest of ocean-going ships have been launched on this river. Cotton is manufactured into thread at Paisley, and Glasgow makes cotton goods, but not to a very great extent. Coal and a moist climate are factors aiding the industry. "Tweed" woollen goods are made at Peebles, Galashiels, Hawick, Jedburgh, Langholm, and Dumfries, where wool is easily obtained, where streams abound,

where railway transport is good, and where coal is the only factor of success lacking, but can be obtained with no great difficulty from the coalfields of the Midland Valley. Tartans are manufactured at Stirling, and carpets at Ayr and Kilmarnock. Fife possesses advantages for the linen industry in the coal of the Fife and Clackmannan coalfield, the humid atmosphere, and, in past years, the ease of obtaining flax from the Baltic countries. Dunfermline, the chief centre, is noted for its table linen; Kirkcaldy (also noted for its linoleum and oilcloth), Forfar, Arbroath, and Dundee make coarser linens, such as canvas and sailcloth. Jute and hemp manufactures, notably sacks and ropes, are confined to Dundee, Arbroath, and Montrose, Jute being obtained from India. Of the chemical manufactures, Glasgow is the chief centre, possessing advantages for the



CLOTH MANUFACTURE

Burling and mending room in the works of J. Emsley & Co. Ltd., Bradford. In these works great interest is taken in the welfare of the employees and there are sports and welfare departments

production of sulphuric acid and soap. In the oil shale districts, candles are manufactured. Paper is made in the Esk Valley, near Edinburgh, the pure water and wood pulp, easily procured from Norway and Sweden, lending aid. Dundee is noted for its jam and orange marmalade. Beer is chiefly brewed at Edinburgh, and whiskey is distilled in the Highlands and all the large cities. Campbeltown is an important centre. A special flavour is given to the Highland whiskey by the smoke of burning peat. Greenock refines sugar obtained from the West Indies. The famous Harris tweed cloth is made by the crofters of the Highlands and the Hebrides.*

The total number of people employed in all classes of industrial establishments is

approximately 1,100,000. The value of the products is included in the figures given in the preceding article.

INDUSTRIAL CENTRES OF IRELAND.

The principal manufacturing industries of the States of North and South Ireland are linen and woollen making, shipbuilding, brewing, biscuit making, tobacco manufacture, flour-milling, tanning and leather manufacturing.

Belfast, in Northern Ireland, is the centre of the linen industry, and owes its importance and its very existence to the growth of flax in the immediate neighbourhood, its situation near the sea, and the quality of the water of the River Lagan for bleaching and

* *Vide* Pitman's Commercial Atlas.

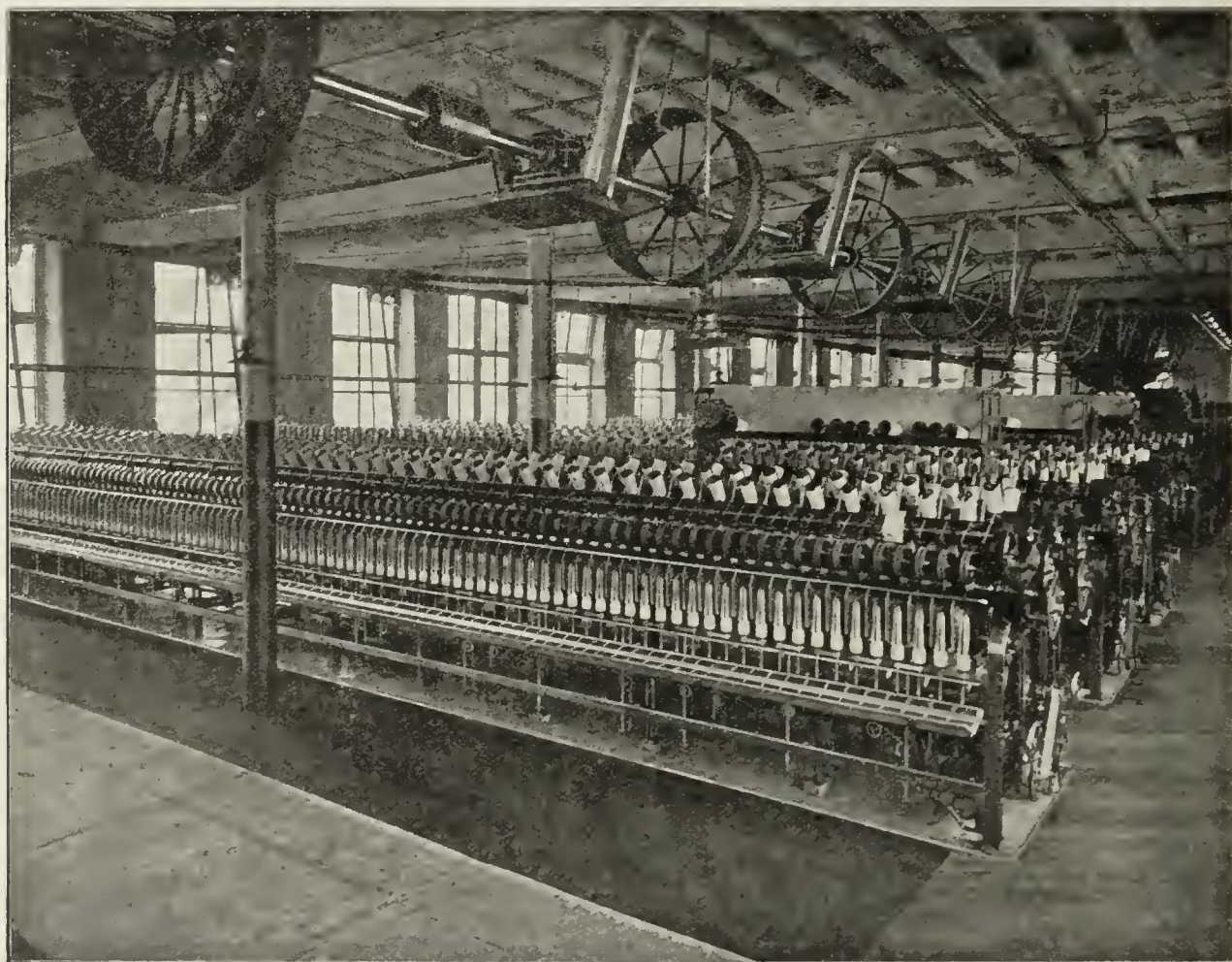
dyeing. Belfast does in fact, produce more linen than any other city in the world, and has to import large quantities of flax, in addition to that which is grown locally. Other towns engaged in the linen trade are Londonderry, Coleraine, Carrickfergus, Lisburn, Lurgan, Portadown, Newry and Larne. The woollen trade is carried on in several small towns, the only one of any size thus engaged being Kilkenny. The purely agricultural industries, such as ham and bacon-curing, are common throughout the country, but are inclined to have their centre in Cork. Brewing, biscuit-making and tobacco manufacture have their headquarters in Dublin and Belfast.

NORTHERN IRELAND.

The importance of the shipbuilding of

Belfast cannot be overlooked. It is, in fact, as far as the city itself is concerned, the leading industry. Nearly 25,000 men and boys are employed, and it is here that some of the largest ships in the world are built. The industry depends largely upon the coal obtained from Scotland and Cumberland, and upon the iron and steel from Barrow. The output averages about 300,000 tons a year.

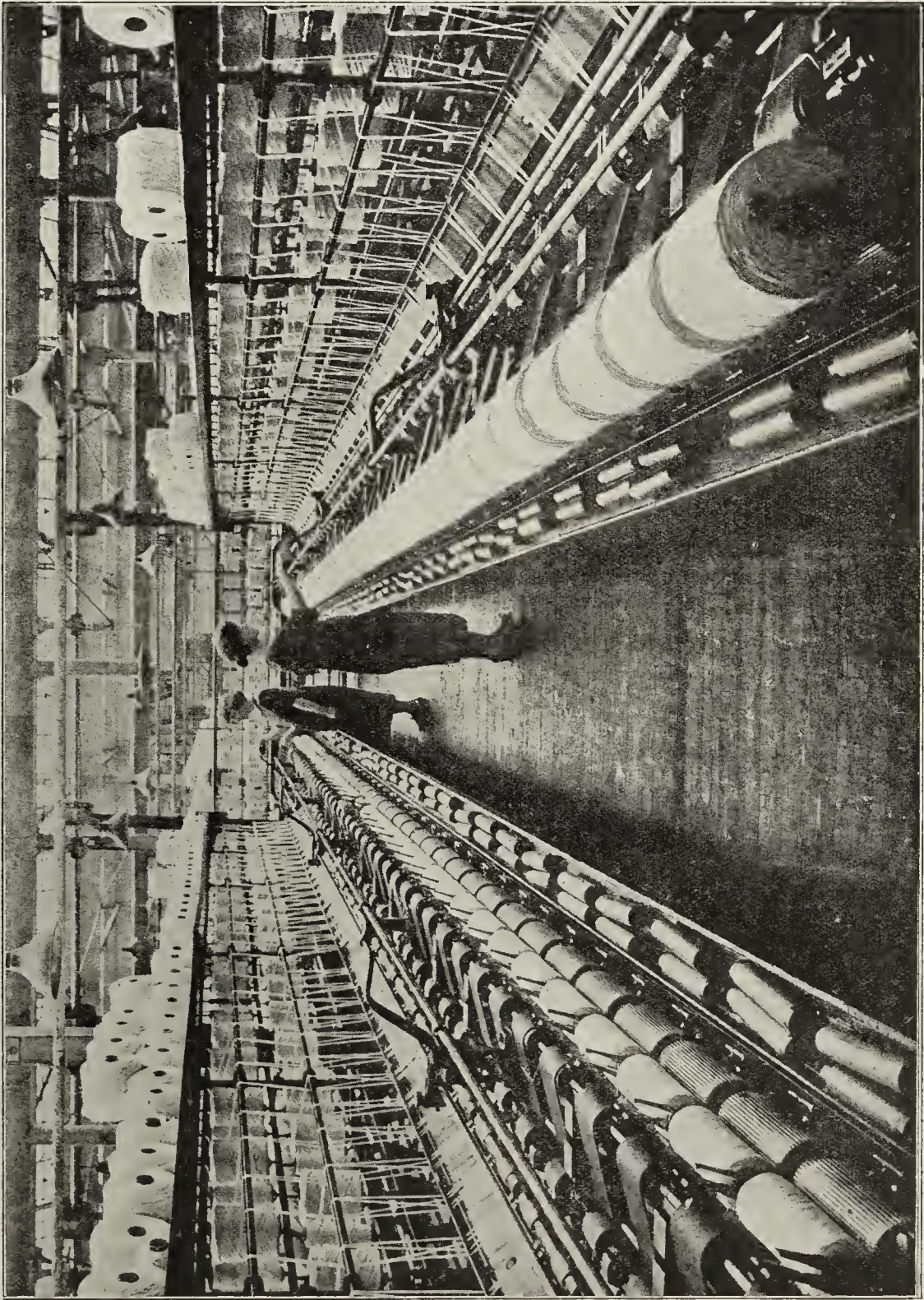
The linen mills provide employment for about 109,000 people. There are in operation over 4,000 looms and 1,000,000 spindles. The value of the output of linen manufactures averages £17,218,000 a year. Among other important industries must be mentioned distilling, the manufacture of tweeds and woollen goods, chemicals, roofing felt, vulcanite, biscuits and matches.



MANUFACTURE OF WORSTED FABRICS

Photo, John Priestman & Co. Ltd.

One of the spinning rooms in the Ashfield Mills. 35,000 spindles are employed



THE WOOLLEN TRADE
A view in the Wolsey Mills, Bramley



GRINDING CHOCOLATE

Refining at Messrs. J. S. Fry & Sons Ltd., Cocoa and Chocolate Works, Bristol

INDUSTRIAL PRODUCTION OF BRITISH ISLES.

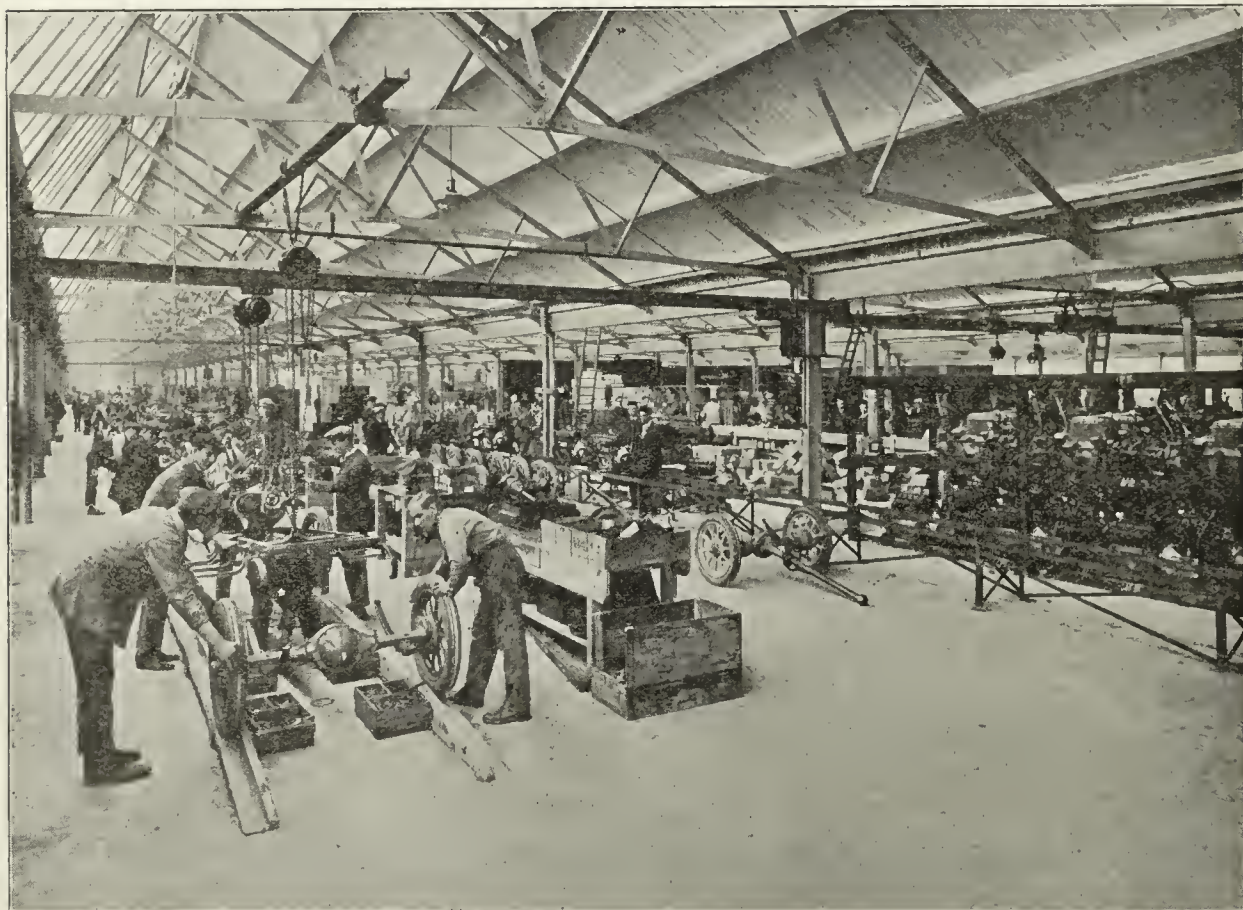
One of the most valuable industries in Great Britain and Ireland at the present time is the manufacture of textiles. Yet it is of comparatively modern growth, for less than 100 years ago, according to a reliable estimate, the value of cotton, silk, woollen and worsted yarns and piece goods manufactured in the United Kingdom did not exceed £22,000,000, whereas the export alone now averages in value £258,000,000 a year, and the capital employed amounts to over £600,000,000. There are 56,600,000 spindles in the British Isles, and it is estimated that, directly and indirectly, 5,000,000 people depend for a living on the textile industry, which is so largely supported by the Dominions, Colonies and Dependencies of the Empire.

Another important industry is shipbuilding, which employs several million people and hundreds of millions of capital. The tonnage of merchant ships built each year averages 1,800,000 (half the annual tonnage built in the whole world).

The value of iron and steel goods (including cutlery, implements and instruments) produced can be estimated from the fact that the average exportation of these manufactures (exclusive of ships, arms and ammunition) is valued at £69,000,000 per annum and machinery of all kinds (including electrical apparatus and goods) at £57,000,000. The blast-furnaces in operation number 141, and the average annual production of pig iron, steel ingots and castings is 10,000,000 tons. Over four million people depend for their living upon the prosperity of the metal industries. The largest customers are India and Australia.



THE CHASSIS ASSEMBLY LINES AT THE COWLEY WORKS, OXFORDSHIRE, ENGLAND

THE CHASSIS ASSEMBLY LINE AT THE MORRIS WORKS *Photo, Brunell & Bowers*

EXPORT OF MANUFACTURED GOODS.

The following table shows the average annual value of the exports of the principal goods manufactured in the British Isles during two average pre-war years and two average post-war years.

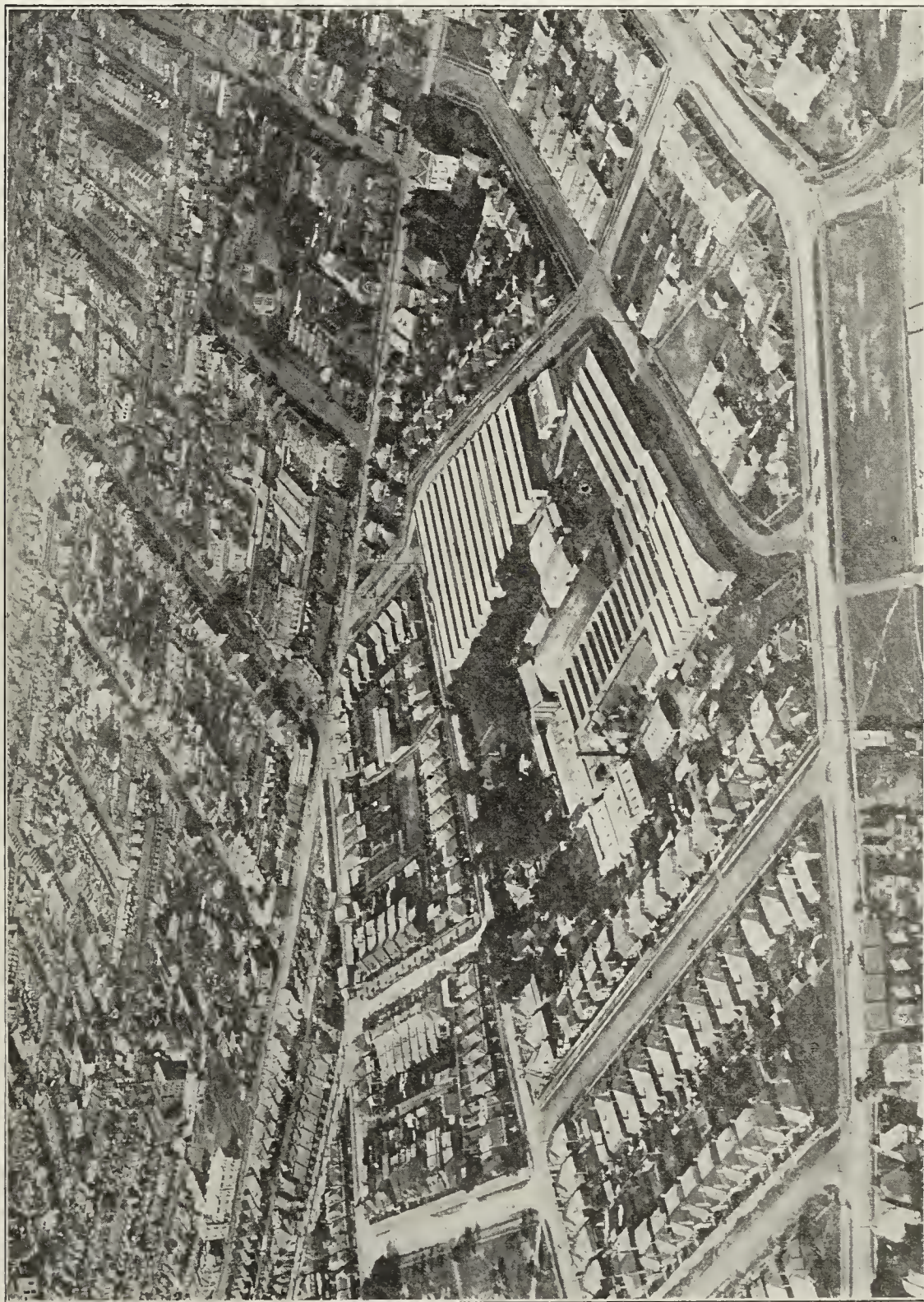
Export.	Pre-war value.	Post-war value.
	£	£
Textiles - -	170,000,000	220,000,000
Iron and steel goods -	49,000,000	64,000,000
Machinery - -	19,000,000	75,000,000
Ships - -	40,000,000	22,000,000
Chemicals and dyes -	12,000,000	28,000,000
Wearing apparel -	15,000,000	18,000,000
Food, drink and tobacco - -	23,000,000	44,000,000
Raw material - -	66,000,000	104,000,000
Total (manufactured articles only)* -	413,000,000	854,000,000†

* Including articles not specified above.

† The rise in world prices largely accounts for the increase in the post-war value which is, therefore, misleading.

Australia

During the period prior to the gold discoveries (1851), little was done in regard to manufacturing industries in Australia. Such industries as had then been established were chiefly connected with the preparation of food-stuffs, and were, to a large extent, called into being by the isolated position of the country. It was found that, owing to the comparatively high prices which could be obtained for the products of the pastoral industry, those engaged in such pursuits in Australia could compete successfully in the world's markets. Owing to the sparseness of its population, and to the distance of Australia from the world's centres of distribution, there was but little incentive towards any decided progress in agriculture, which was, accordingly, for many years almost entirely subsidiary to sheep and cattle raising. With the adoption of improved methods of agriculture, however, there were signs of an early extension in the cultivation of wheat, when



MARRICKVILLE, AN INDUSTRIAL SUBURB OF SYDNEY, NEW SOUTH WALES, AUSTRALIA
This aerial view shows the great Vicar's Woollen Mills

Photo, Australian Government

the discovery of gold, in 1851, completely changed the economic aspect in Australia and effected a revolution in all industrial relations. The large towns were practically depleted of their male able-bodied population, and the first effect of the gold rush upon manufacturing industries was disastrous. The supply of labour in many occupations was exhausted, and most branches of industry came to a standstill. There was, however, a rapid change. A decline in the activity of the goldfields threw many immigrants, whose early lives had been passed in English cities, out of employment. The surplus of labour thus engendered accumulated in Melbourne and a few other large towns, establishing incipient artisan communities. This, no doubt, intensified the early impulses towards industrial employment. In Victoria, in particular, it was sought to encourage the investment of

establishments, with 311,772 operatives, producing goods to the value of £133,186,560, in 1911; to 17,113 factories, with 386,639 employees producing manufactures valued at £320,000,000 in 1921, and 22,775 factories employing 464,196 hands producing goods to the value of £416,994,000 in 1928. The table shows the principal industries and the number of employees.

The established policy of the Commonwealth Government is that of effectively encouraging the development of local industries by means of protective duties, as well as by the payment of bounties and bonuses. In addition to tariff support, contracts are frequently placed with local manufacturers at prices higher than those which would have to be paid for imported goods. There is thus a determination on the part of the Australian people to become more self-supporting by creating and maintaining manufacturing industries, and hence to assure a maximum condition of employment.

Class of Industry.		Fac-	Em-
		tories.	ployees.
		No.	No.
Treating raw materials	-	658	9,165
Treating oils and fats	-	95	3,034
Processes in stone, clay, etc.	-	896	21,387
Working in wood	-	2,429	30,108
Metal works, etc.	-	2,677	98,913
Food and drink, etc.	-	3,923	71,194
Clothing, etc.	-	4,813	109,780
Printing, etc.	-	1,556	34,008
Musical instruments, etc.	-	55	1,768
Arms and explosives	-	12	802
Vehicles and fittings, etc.	-	2,707	26,316
Ship and boat building	-	90	6,753
Furniture, etc.	-	1,303	16,745
Drugs, chemicals, etc.	-	330	8,195
Surgical instruments, etc.	-	106	773
Jewellery, etc.	-	264	2,250
Heat, light, and power	-	469	12,099
Leatherware, n.e.i.	-	322	9,851
Minor wares, n.e.i.	-	70	965
Total	-	22,775	464,196

capital in manufacturing enterprises by the establishment of protective customs duties. Manufacturing industries were revived on a larger scale than formerly, and the population attracted by the discovery of gold remained in Australia and furnished the labour necessary to operate the factories thus established.

The number of factories rose from 11,575 employing 228,560 hands, in 1906, to 14,455

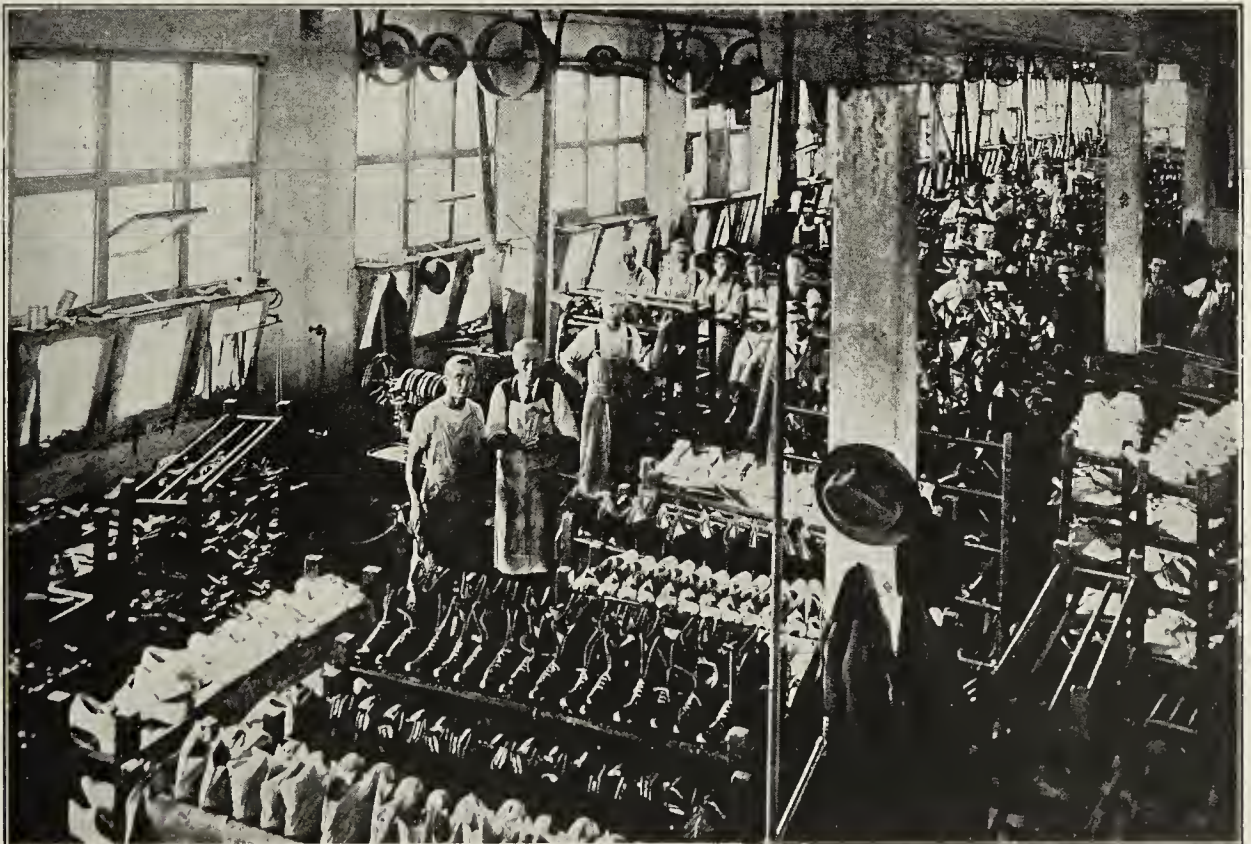
Canada

The encouragement of Canadian manufactures by tariffs had been discussed during the '50's, and to some extent commenced in 1858, but it was not until 1878 that a general policy of protection was adopted. Thereafter, a considerable growth took place, though at the end of the nineteenth century the value of products was only \$481 millions, the capital employed \$446 millions, and the number of employees 339,000.

It is the present century that has witnessed the chief forward movement in Canadian manufactures, the result of two great influences, first the "boom" accompanying the opening of the "last best West," which greatly increased the demand for manufactured goods of all kinds and especially construction materials, and secondly, the war, which not only created enormous new demands but left a permanent imprint upon the variety and efficiency of Canadian plants. In 1910, when the first of these influences was but partly felt, the value of Canadian manufactures had risen to \$1,165 millions, the capital invested to \$1,247 millions, and the number of employees to 515,000; but by 1920, the "peak" year, the gross value of Canadian manufactured



INSPECTING FRUIT BEFORE SHIPMENT, VICTORIA, AUSTRALIA



A BOOT AND SHOE FACTORY, NEW SOUTH WALES, AUSTRALIA

Photos, Australian Government

products was no less than \$3,772 millions, the capital invested \$3,371 millions, and the number of employees 609,586. Hundreds of millions of capital had been attracted from outside in the achieving of this striking result. The figures declined later, but according to the latest census available, Canada possessed in 1927, 22,963 manufacturing establishments, whose capital investment in lands, buildings, equipment, etc., amounted to \$4,337,631,558, which employed 618,933 persons with salaries and wages

\$152 millions, Winnipeg with \$95 millions, Vancouver with \$87 millions, Oshawa with \$77 millions, and Ottawa with \$63 millions. There are 43 other places having manufactures of \$10 millions or over.

The original objective of Canadian manufactures was the supply of the local or home market, though certain industries, such as flour and lumber looked to the foreign market from a very early period. Gradually, however, the territory served by Canadian manufactures has expanded, until to-day



PACKING FRUIT IN AUSTRALIA

Photo, Australian Government

amounting to \$693,932,228, consumed \$1,789,574,604 worth of raw materials (not including fuel) and produced goods to the value of \$3,425,498,540 (£685 millions). By 1928 the number of establishments had increased to 23,379, the capital invested to \$4,780,296,049, and the value of the products to \$3,769,847,364. In subsequent years the increase has been about 10 per cent.

The leading centres of manufactures to-day are Montreal and Toronto, with totals of \$540 millions and \$520 millions, respectively. After these come Hamilton with

these goods are being sent to virtually every country in the world. Since the beginning of the present century alone the exports of Canadian manufactured goods have gone up from \$99 millions to \$648 millions. Since 1910 the percentage of imports of raw materials into Canada increased from 24.2 to 25.6 per cent. of the total imports, and exports of raw materials decreased from 51.2 to 47.2 per cent. of the total exports; while the percentage of imports of fully manufactured goods decreased from 65.8 to 64.8 per cent., and



FACTORIES AT SHERBROOK, QUEBEC
One of the industrial centres of Canada

Photo, Canadian Government



A SALMON CANNERY ON THE FRASER RIVER, BRITISH COLUMBIA

Photo, Agent-General for British Columbia

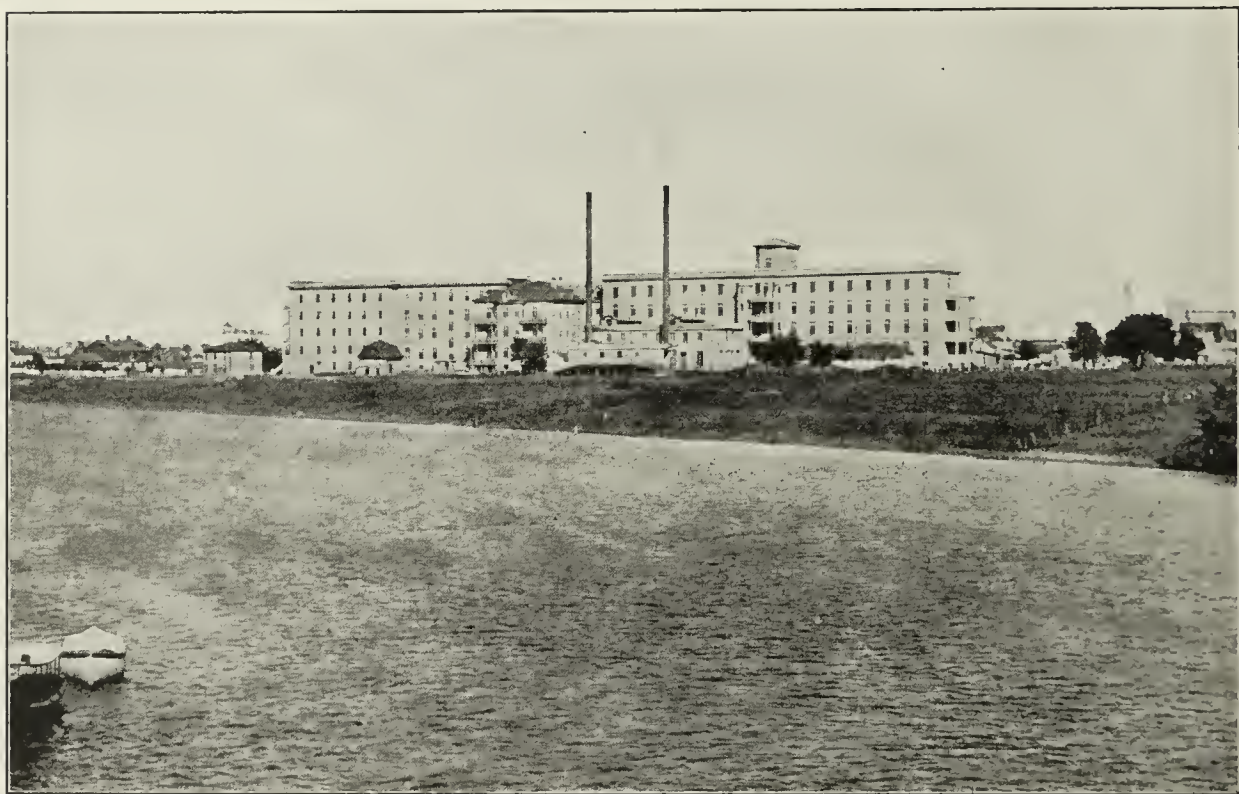
exports increased from 32.7 to 37.4 per cent. In recent years Canada's exports of manufactures have been larger than her imports.*

India

In ancient times the people of India attained a high state of perfection in various manufactures. About 200 years ago, the manufacturing industries of India compared favourably with many European countries, especially is this the case with artistic work-

for the *superfluities* so long as the *needs* of life were satisfied, the estimation of personal attributes rather than possessions, and last, but by no means least, the absence of female extravagance, for, when studying the reasons for the growth of the manufacturing industry in all countries it becomes apparent that most Western industries owe their existence to the desires of women. In the East, there has been, in the past, little or no spur of this kind.†

The *modern* manufacturing industries of India are as yet in their infancy, but, during



Photo, High Commissioner for Canada

A LARGE FACTORY ON THE ST. LAWRENCE RIVER, CANADA

ing in metals, stone and wood, weaving and dyeing, and architecture. Many of the buildings remaining are still among the finest monuments in the world, and even to-day some of the old handicrafts still survive, particularly metal working, forms of carving and cotton-weaving. India stood aloof, however, from the successive waves of industrial enterprise and development which changed the face of Europe and America, the reasons for this being the lack of desire

recent years, signs of their slow but steady growth have become apparent. From this it will be seen that industrial activity in this great Asiatic Empire falls under two headings: the survival of the old, which may be called "handicrafts," and the introduction of the new, or modern, manufacturing industries. About the former, only the briefest information is here possible, but more will be found in the section devoted to the Indian Empire.

*Dominion Bureau of Statistics, *Canada* 1930.

† *Empire of India*. Sir J. Bampfylde Fuller.



Photo, Agent-General for British Columbia

UNLOADING SALMON IN A FRASER RIVER CANNERY

HANDICRAFTS.

These comprise the simple wants of the Indian villager—nine-tenths of the people of India—and are made by village artisans. The objects of art and beauty which have accumulated in the great cities, towns and palaces are the result, in most instances, of the work of village craftsmen, and not of organised art manufacture. Perhaps the chief Indian industry has been the weaving of cotton, and India is the home of the cotton plant. It was not until the Arab conquests in the eighth century that the cultivation of cotton spread westwards beyond the Indian frontiers. Hand-loomers have, however, now been largely abandoned for more remunerative employment, and where they are still in use machine-made yarn is employed. About forty years ago, the imports of British cotton

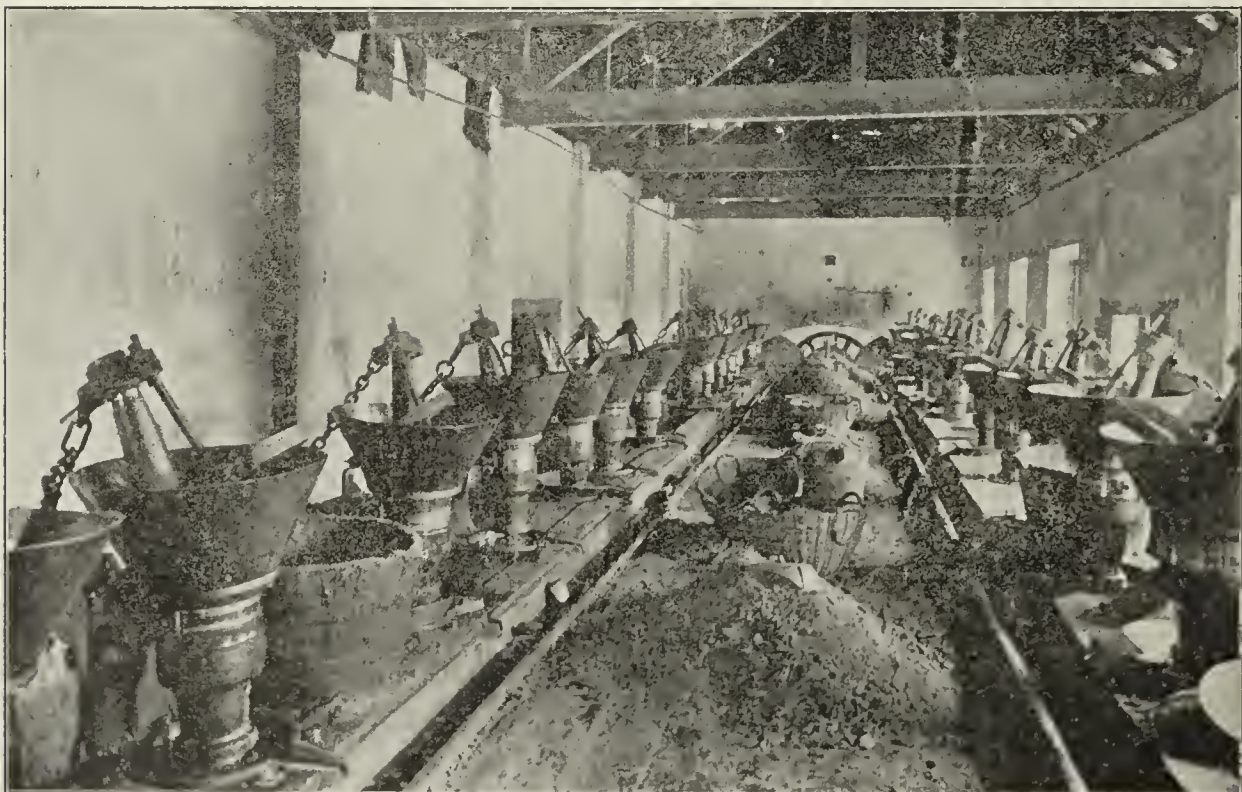
fabrics amounted to about 1,400,000,000 yards per annum and about 84,000,000 yards were made by Indian mills. The imports of cotton fabrics have risen to an average of 1,900,000,000 yards per annum, and the output of Indian mills has increased to over 950,000,000 yards a year.

Hand-loomers are, however, still used all over India, especially in Assam and Burina, for the making of fine and decorative clothing. The weaving of coloured yarns into patterns has enabled this industry to resist, to a certain extent, the encroachments of the machine-made product.

But the competition of the West, and the introduction of machinery, have all but destroyed a large proportion of the native industries. Home-made cottons cannot compete with the products of Lancashire,



WEAVING COIR MATTING, TRAVANCORE, INDIA



MILLING COPRA, SOUTHERN INDIA



CLOVE SORTING AND PACKING, ZANZIBAR

and the establishment of various factories in Bombay and Ahmadabad has made the maintenance of the old state of things more difficult than ever. Moreover, the factories are rapidly increasing in number. Again, the celebrated fine muslins of Dacca, in Bengal, and of Madras, for which India was once so celebrated, have become practically a thing of the past. Silk and jute factories have been set up, the former in Bombay and the latter in Bengal. Still, the Indian artisan does maintain his pre-eminence with regard to the making of certain articles of luxury and art, especially in those wrought in ivory, gold, silver, copper, and brass, and these are prized all over the world. Kashmir shawls are well known, and so are rich figured silks. Carpets and rugs are still extensively and profitably manufactured.

MODERN MANUFACTURES.

Beginning with cotton mills, we find that less than 60 years ago there were only two or three mills in the whole of India, whereas to-day there are about 350 mills, with over 9,100,000 spindles and 160,000 looms. These

mills are situated principally in Bombay and Ahmadabad, and are financed and managed by *Parsis* (see *India*), but there are also a number in Delhi, Cawnpore and elsewhere. In Bengal and Madras, however, there are comparatively few, considering the demand for cotton and cotton goods. The average annual output of yarn exceeds 750,000,000 pounds, about one-third of which is exported to China and Japan. The annual production of woven goods averages about 480,000,000 pounds. There are, also, 1,300 cotton ginning, cleaning and pressing mills.

Next in order of importance to cotton comes jute mills. It was originally used for the clothing of the poor, but jute now supplies the material for bags and packing-cloth. Bengal is the seat of the jute manufacturing industry, and there are in all about 95 mills, with 1,100,000 spindles and 60,000 looms, having an export of jute manufactures valued at £36,000,000 per annum. A considerable portion of the Indian jute crop is exported to Dundee (see *Scotland*) and, in pre-war years, also to Germany. There are a large number of jute mills in Calcutta.

There are about twenty woollen mills, and a large number of iron and brass foundries. There are also several large potteries and tile works, and many small ones. Leather working is going ahead rapidly, and India now exports boots and shoes. The headquarters of this industry are in Cawnpore; but it has extended to many parts of India, chiefly, however, in Bombay and Madras. There are 13 breweries and a very large number of ice-making plants. Of paper

1906 to 4,402 in 1911, and during recent years it has averaged 5,200. The number of people employed in all classes of the manufacturing industry is about 82,000; and the value of the products averages £88,000,000 a year.

The principal industries are meat freezing and preserving, butter and cheese factories, grain mills, saw mills and wood-working factories, tanning and fell-mongering, printing and bookbinding, clothing, gasworks,



Photo, South African Railways

THE NEW MARITIME AND INDUSTRIAL AREA OF CAPE TOWN

mills there are about nine, with a total output of 68,000,000 pounds. In Burma, there are seven or eight large oil refineries with 275 miles of pipe-line from the wells.

In the Indian Empire there are about 6,700 factories, employing 1,680,000 people, but by far the largest number of these are cotton, rice and jute mills and railway workshops.

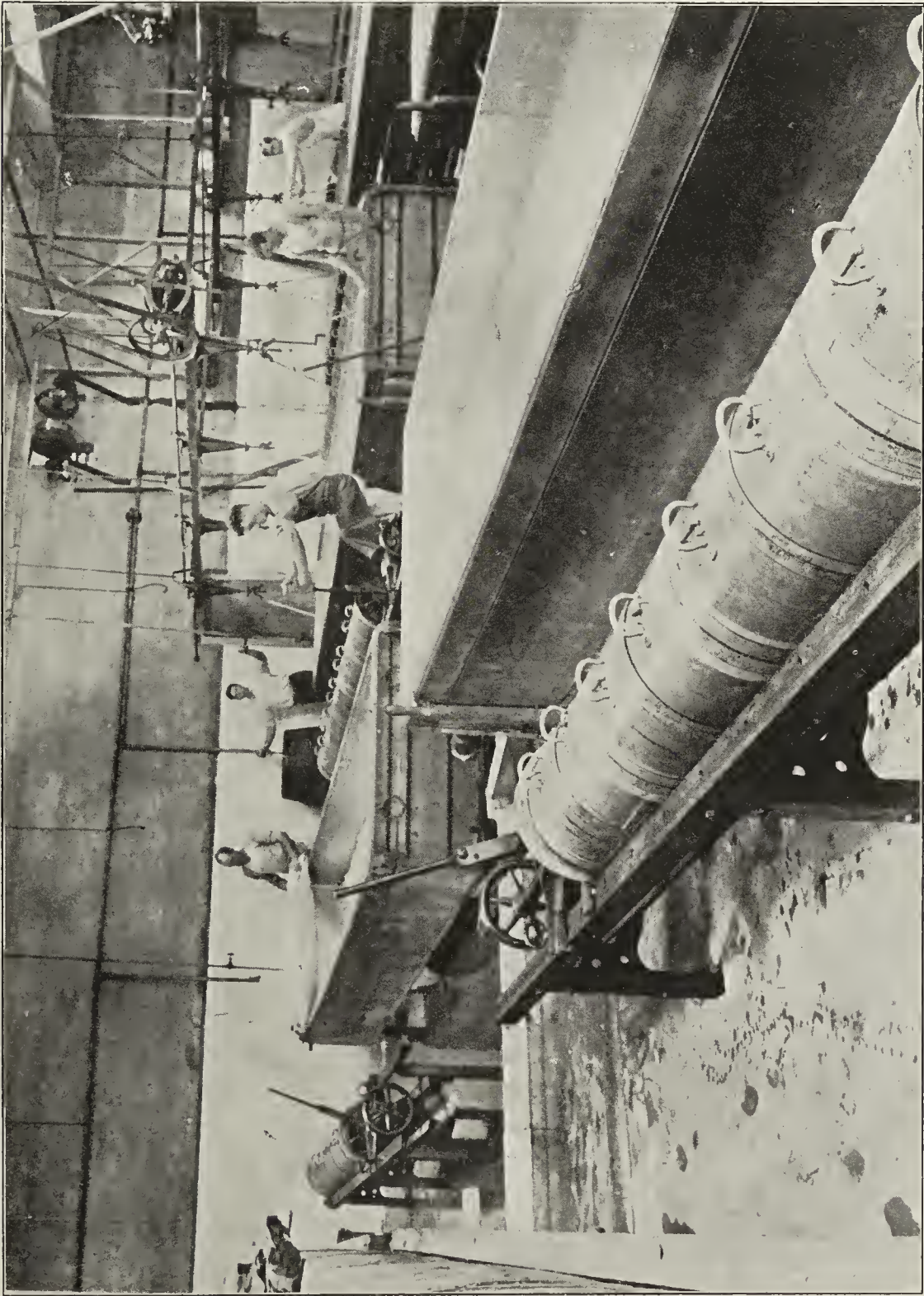
New Zealand

The number of industrial establishments in the Dominion increased from 4,186 in

engineering, tailoring, boot and shoe factories and woollen mills.

Union of South Africa

The manufacturing industry in the Union of South Africa is at present in its infancy. the mining, pastoral and agricultural industries having absorbed the work and the attention of the capitalist and industrial worker. In the Cape Province, a large percentage of the manufactured goods are imported, principally from the United Kingdom. (See *Commerce*.)



Photo, New Zealand Government

THE CHEESE MAKING INDUSTRY, NEW ZEALAND
Pressing the curd

Among the comparatively important industries must be mentioned wagon, cart and harness making, flour milling, founding, brewing, jam-making, tailoring and dress-making, also a large explosives factory at Somerset West. In Natal, the few factories are situated in Durban and Pietermaritzburg. But in other parts of the Province also there are some corn mills, saw mills, biscuit factories, tobacco factories, wagon-making establishments, aerated water manufactories, printing offices, iron foundries, wattle bark-cutting works, electric light works, brick and tile yards, breweries, clothing, and various other establishments; and along the coast there are many sugar, tea, and coffee factories. There is a large explosives factory near Durban. Most of the employees in these manufactories are Indians or natives. For the encouragement of manufacturing industries, the Government offer from time to time rewards to manufacturers for certain products, such as slate, or mill-board, manufactured from Natal asbestos.

In the Transvaal and Orange Free State Provinces, the manufacturing industry is of even less importance, with the exception of the few industries connected with mining and agriculture; the only important establishments in the Transvaal being a dynamite factory at Modderfontein, near Johannesburg, a candle and soap factory at Delmore, a cement factory near Pretoria, brick yards at Vereeniging and Pretoria, breweries at

Johannesburg, Pretoria, and Middelburg, numerous grain mills in the country districts, railway workshops at Pretoria, printing works at Pretoria and Johannesburg, and pottery and tile-making at Oliphantsfontein.

The Great European War stimulated the manufacturing industry in United South Africa, especially the production of leather and leather goods, for which the country is eminently suitable. Tanning extract is being made from wattle bark. Cement is being made in increasing quantities. Beer and matches are produced in sufficient quantities to meet the home demand. Among other products now being made in the Union may be mentioned, calcium carbide, sulphate of ammonia, bottles, starch from maize, cigarettes, and printed matter. There is also increasing activity in the dairy and fruit-packing industries.

The total production of the factories has an average annual value of over £100,000,000 per annum. The number of important factories is 7,228, employing 209,850 people.

British Empire

Where manufacturing is carried on in the smaller Colonies it is treated under the respective territorial headings. The average annual value of the manufactured products—the output of the factories of the Empire, *exclusive* of India—is approximately £4,045,000,000.



MAURITIUS

CLUSTERED round the north and north-west coasts of Madagascar are many small unimportant islands belonging to Great Britain, all of which form dependencies of Mauritius—the one really valuable Imperial asset in these seas, exclusive of those of strategic value. Mauritius, which is an island lying between Lat. $19^{\circ} 58'$ and $20^{\circ} 33'$ S., and Long. $57^{\circ} 18'$ and $57^{\circ} 49'$ E., has an area of about 720 square miles, a large portion of which is composed of fertile soil. It is situated about 550 miles east of Madagascar. The population numbers about 400,000, of whom 298,000 are Indian coolies—originally imported for work on the plantations. The climate is healthy but hot, and the rainfall, during the wet season, is in many parts of the island very heavy, although, curiously, during the summer months droughts are not unknown. Agriculture forms the chief industry; and, in common with all sugar-growing countries, this island suffered much in pre-war years when the cultivation of cane was made almost unprofitable by the introduction of beet sugar. The area of the Colony, including its small island dependencies, is about 809 square miles.

THE FRENCH AND ENGLISH.

[Being situated on the trade route from the Cape to India and the East, Mauritius was, previously to the opening of the Suez Canal, a much more frequented port-of-call than it is to-day, although such were, even then, the mercantile attractions of India that, although many Portuguese and Dutch

ships called at Mauritius and also at the neighbouring island of Rodrigues, only one or two half-hearted attempts were made during the sixteenth and seventeenth centuries to develop the agricultural resources of these islands.

In 1712 the Dutch relinquished their settlements on the island, and three years later the French, who had already commenced colonisation in the islands of Bourbon (Réunion) and Madagascar, dispatched a vessel under the command of Captain Dufresne to take possession of Mauritius, and the name was changed to “Ile de France.”

Although the work of exploitation was commenced by the badly governed French East India Company in 1721, and a large number of settlers were sent out from Europe, little was accomplished until the arrival, as Governor-General, of that great, though ill-starred, French administrator, Mahé de Labourdonnais, who addressed himself in earnest to the work of colonisation and development. He suppressed the armed bands of runaway slaves which were a terror to the settlers, and moved the capital from Port Bourbon on the south-east coast to what is now known as Port Louis on the north-west coast. Labourdonnais also carried out many useful public works during his two terms of office, but such was at that time the gratitude of his country that on his return to France, in 1746, he was thrown into the Bastille, where he remained a State prisoner for over three years, dying shortly after his release in great poverty.



PALM AVENUE, PORT LOUIS, MAURITIUS

Photo, Miss Frezland

The Isle of France continued to thrive for many years. Even the French Revolution and the long-sustained war with Great Britain did but little to check its rapidly increasing prosperity, which is worthy of close study as it is somewhat unusual in the early history of French colonial enterprise. The settlers did not confine themselves, however, to the development of the resources of the island, but fitted out privateers to harass British shipping on its way to and from the Indies ; and, in 1810, the Indian Government dispatched a strong naval and military force to capture the island. The Seychelles had already been brought under British administration, and the Island of Bourbon surrendered after a brief resistance. The French in the Isle de France maintained their position for some months, but a large force under General Abercrombie invaded the island and compelled its surrender after three days' fighting. The capitulation was subsequently confirmed by the Peace of Paris signed in 1814.

With the coming of the British the story of war ceases, and the history of Mauritius resolves itself into a long chapter of adminis-

trative reforms, the extension of the electoral principle, and the gradual abolition of slavery. To the credit of the people of the island it should be said that the settlers themselves agreed and assisted in carrying out this last difficult measure. Indian coolie labour was substituted for slavery, and today a large portion of the population of this island and its dependencies is composed of Indian labourers and their descendents. Two millions sterling was also paid by the Imperial Government as compensation to slave owners in Mauritius.

The form of administration now in vogue is that usual in Crown Colonies, but a considerable elective element is present in the Legislative Council (10 out of 27). The total area under cultivation is 206,000 acres, of which about 170,820 acres are planted with sugar cane. The principal exports are sugar, aloë-fibre, copra and coco-nut oil. (See *Commerce*.)

ISLAND OF PAUL AND VIRGINIA.

To the French belongs the honour of having been the first to recognise and profit by the agricultural resources of Mauritius and the



THE COAST OF MAURITIUS

Photo by kind permission of Miss Freeland



THE FRIDAY BAZAAR, PORT LOUIS

Photo, Miss Freeland

adjoining islands. Here, as in Canada, they showed the best example of their colonising ability, and although the chances of war have placed the chief of these islands in British hands it is only right to remember that the difficult pioneer work was nearly all accomplished by the early French settlers. Even now there is a strong French and Creole element living in perfect harmony with the Anglo-Indian; and the French language, laws, and customs are preserved by the British administration.

Considering that Mauritius lies within the tropics the climate is fairly healthy in all parts of the island, although, as in Ceylon, the highlands of the interior are cooler and less enervating for Europeans than the hot and damp atmosphere of the low-lying littoral, where malarial fever is somewhat prevalent. Epidemics have occurred in the past of cholera and small-pox, and leprosy is not unknown; but the rigid enforcement of quarantine regulations has done much to stamp out these diseases, and

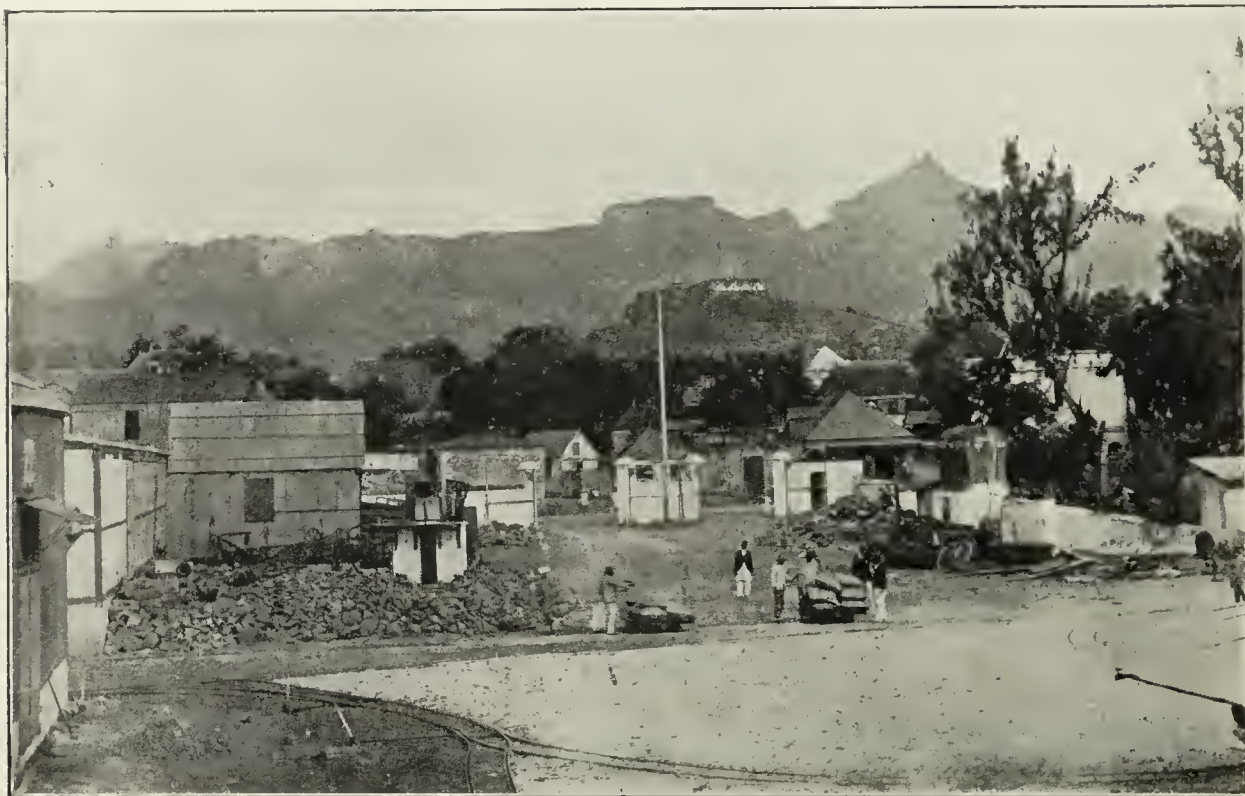


A COUNTRY ROAD, MAURITIUS

Photo, Miss Freeland

Mauritius, the island of *Paul and Virginia*, possesses a wonderful combination of wild and rugged mountain peaks, rushing torrents and waterfalls, wooded valleys and plantations; with tropical vegetation everywhere—moist, green and luxuriant, except, during the hottest months, on the lowlands of the coast—which gives to this island some of the most beautiful scenery to be found under the bright sun of the tropics. It is distant about 550 miles eastward from the coast of Madagascar, and its nearest neighbour is the French island of Réunion, or Bourbon.

the death rate among Europeans is by no means high for a tropical country. The hottest months in the year are from December to April, when the temperature on the coast often rises to 100 deg. F. in the shade; but up in the mountains and on the plateaux of the interior the heat is much less, though the rainfall, which on the coast averages about 50 in. annually, is there much greater. In the hot season hurricanes occasionally sweep across the island causing considerable damage to the buildings and plantations. A particularly severe cyclone occurred in



PORT LOUIS AND THE CITADEL

Photo, Miss Freeland

NATIVE CRAFT. A TYPICAL COAST SCENE

Photo, Miss Freeland



Photo, Miss Freeland

A TYPICAL GARDEN IN THE ISLAND OF "PAUL AND VIRGINIA"

1892. During the cool months, the south-east trade winds blow fresh and steadily from the vast stretches of ocean which girdle the southernmost limits of the earth.

The topography of Mauritius is not unlike that of Ceylon. The coast is for the most part low-lying and well wooded, while parts of the interior are very mountainous. The centre of the island is composed of a plateau supported on all sides by mountains, but only three small ranges are well defined. The most important of these stands behind Port Louis, the capital, and shields it from the south-east trade winds, but causes its climate to be less healthy than if the town was open to these fresh sea breezes. The second range consists of the Black River and Savanna Mountains in the south-west; and the third range, which forms a background to Grand Port, lies in the south-east corner. In this range is the highest peak in the island, the Piton de la Rivière Noire, 2,700 ft. high, while immediately behind the harbour of Port Louis are the two queer-

shaped mountains named "Pieter Both" and the "Pouce."

Mauritius possesses no large unexploited resources, either mineral, agricultural, or sylvan, although, undoubtedly, the great variety of climate and soil offers opportunities for growing more profitable crops than are at present cultivated. Many of the necessities of life are imported from India, South Africa, Great Britain, France and Australia. Over 60 per cent of the population of Mauritius are Indians. This accounts to a great extent for the large importation of rice and other grains from India. There are also several thousand persons of French descent, and many half-castes and African natives, as well as a few Chinese and descendants of slaves from Madagascar; but above all the Indian community predominates; and Mauritius, portions of Malaya, British Guiana, Zanzibar, Kenya, Tanganyika, Fiji, and Natal were, previous to the passing of an Act prohibiting the outflow of indentured labour from India (*q.v.*), the principal



LOADING CANE ON A SUGAR PLANTATION

Photo, Miss Freeland



THE MOUNTAINOUS INTERIOR OF MAURITIUS

Photo, Miss Freeland

immigration grounds for the population of the Indian Empire, which is increasing at the average rate of 1,000,000 a year.

PORT LOUIS.

The capital, which has a population of about 59,800, is the only important com-

half of which sails under the Red Ensign. As a fortified naval coaling station it is an essential link in the chain of British island bases which girdle the ways of Empire, for it lies on the only practical route whereby a hostile European fleet could hope to reach Indian waters. It is also conveniently



Photo]

RAFFIA PALMS AND INDIAN CHILDREN [*Miss Freeland*
ON THE RIVER BANK AT VACOAS

mercial centre in the island, and besides being the chief port-of-call on the Cape to Ceylon and India route it is the emporium and government headquarters for many of the small surrounding islands. The tonnage of shipping annually entering and clearing averages just over one million tons, over

situated for the operations of a fleet blocking or keeping open the Cape route to Australia and New Zealand, should the commerce or independence of these dominions be threatened by a foreign Power; but as a strategic position Port Louis is of much less importance than Gibraltar, Malta, Aden, and

Singapore, especially as Great Britain possesses several other coaling stations in these seas, such as the fine harbour in the island of Diego Garcia, one of the Chagos group, situated midway on the direct route from the Red Sea to Australia, and also in close proximity to the track of vessels plying between the Cape, Mauritius and Ceylon; and Port Victoria on the north-east coast of the island of Mahé, the chief of the Seychelles archipelago.

Port Louis from the harbour makes a pretty view. The town and anchorage are enclosed on three sides by mountains which are so precipitous that even the railway lines which connect the country districts with the capital skirt their bases. The total length of line in operation is 144 miles, part of which is narrow gauge. There are also 600 miles of telegraph wire with 59 offices and an extensive telephone system which is operated by the Government. The harbour, which is commanded by forts garrisoned by British artillery, is fairly spacious, although the entrance is narrowed by coral reefs. The town itself possesses the usual complement of Government buildings, and a goodly number of shops and hotels, but it is to the harbour that Port Louis owes the sum of its prosperity.

Mauritius is divided into nine districts, but the only one of importance, other than that of the capital, is Grand Port in the south-east, where there are still a large number of planters and others of French descent. It takes its name from the harbour where the first European settlement was founded in Mauritius over two-and-a-half centuries ago.

The average annual value of the imports and exports is £3,800,000 and £2,798,000 respectively. One-third of the imports come

from the United Kingdom and over half the exports are sent to the British Isles. The revenue averages £1,280,000 a year; the expenditure is approximately £1,220,000; there is just over a million sterling in paper currency in circulation and a public debt of about £1,800,000.

DEPENDENCIES.

Port Louis is the Government headquarters of Mauritius and its many small island dependencies, which include, besides Rodrigues, the next in importance to Mauritius, the scattered groups off the north coast of Madagascar, the Chagos Islands, Amsterdam, and St. Paul, numbering in all about thirty-five small coral islands situated in the south-western portion of the Indian Ocean. About these nothing more need be said, for there are but few which have a permanent white population. A Commissioner visits them occasionally to settle native disputes. An exception, however, must be made of the Island of Rodrigues, which has an area of about 50 square miles and a small white population. It is situated about 349 miles east of Mauritius. It is administered by a commissioner and a police official, and is one of the most picturesque islands belonging to Mauritius. The capital is Port Mathurin, a small village on the coast, opposite the only navigable channel through the coral reefs which completely encircle this little island. Sheep, cattle and goats are reared in considerable numbers, and limes, oranges and beans are grown for export. There is a hospital, one or two missions and a cable station. The oversea trade of Rodrigues is carried on entirely with Port Louis. The population numbers about 7,000. (See also under *Trade Routes, Government, Steamship Routes, etc.*).

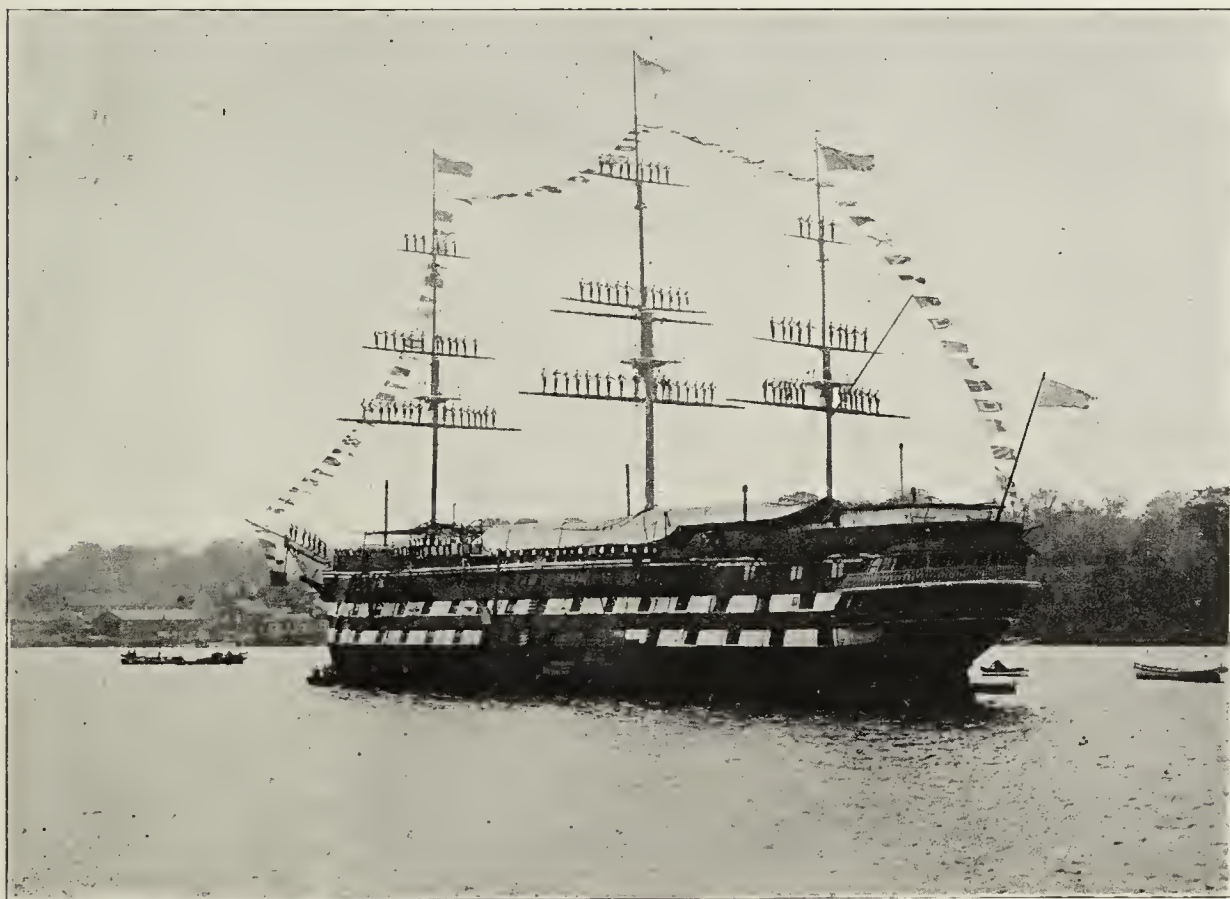


MERCANTILE MARINE

THE importance of ocean shipping to a sea-divided Empire will be apparent to everyone, but it is not so generally realised that even if there was no Empire, no natural or political cohesion between the component parts, each of these parts would be just as dependent upon shipping as it is to-day. It is not a political factor but a geographical and economic law which renders

all nations or communities increasingly dependent upon sea transport. Exactly how far aerial navigation will modify or alter this old rule it is, as yet, impossible to forecast.

The total number of merchant ships owned by the Empire is about 10,902, of 22,288,140 gross tons. Second on the world's list comes the United States with 4,638 ships of 15,220,000 tons. The remaining countries



THE WOODEN WALLS OF OLD ENGLAND

A warship of the past now used as a training ship for officers of the British Mercantile Marine
(H.M.S. Worcester in the Thames)

possess, between them, 17,200 vessels of 24,700,000 tons. From this it will be seen that over one-third of the world's shipping sails under the Red Ensign.

The number of steamers and motor vessels, of over 100 tons, owned in the United Kingdom is about 8,000, and by the Self-Governing Dominions 2,000. Sailing ships total 340 and 520 respectively. The personnel of this huge fleet varies in number from 240,000 to 300,000. The percentage of British subjects is 94.45, making it, of all professions

made some successful commercial ventures during the latter part of his reign. When King Richard (Cœur de Lion) came to the throne the Mercantile Marine received a further fillip, and was placed on a sound legal basis by the "Shipping Code," which was established about 1282.

In the year 1340 there were 700 merchant ships of various kinds in England, and by 1440 this number was more than doubled. An Act passed in the reign of King Henry V required all merchant ships to be measured



THE FIRST OF THE CUNARD FLEET

and trades outside the Government service, the most truly British in both ownership and control.

RISE OF THE BRITISH MERCANTILE MARINE.

The first vessels were constructed of wood and the dried skins of animals, and were in use about 50 B.C. Then came the Roman occupation during which time ship-building in these islands was greatly developed. King Alfred (the Great) was the first to build comparatively large vessels, which, although used primarily for warlike purposes,

under certain rules, and their tonnage and description registered. This was the beginning of the Registration of Merchant Shipping.

About 1550 an association called "The Merchant Adventurers Company" was formed, and through the energies of this concern another company was started in 1555 called "The Muscovy Company." King Henry VII was one of the pioneers of English maritime trade. He had constructed and fitted out many ships, entirely at his own expense, for commercial ventures overseas.

In the sixteenth century vessels of over 1,000 tons were first built; and in the reign



THE PALM COURT OF THE SS. "MAJESTIC," WHITE STAR LINE

of Elizabeth the Mercantile Marine may be said to have had its real birth, for, although there has been many setbacks since, from that time onward has been a period of rapid progression. The colonisation of Virginia, early in the seventeenth century, helped this end, and Cromwell's Navigation Act in 1651 was another determining factor. By this Act, which was really a form of protection, the importation of goods in any other than British ships was prohibited.

The year 1800 saw the birth of the steamship, and 1811 the first passenger steamer. Soon after this a steamship made the first passage across the English Channel. In 1701 there were between 500 and 600 large vessels belonging to the Port of London, and at the close of the century the coasting coal trade had commenced to assume considerable

proportions, about 250,000 tons per annum being conveyed from the North of England to the Thames. In 1702 there were about 3,275 merchant vessels belonging to Great Britain, the average tonnage being under 100.

In 1789 the first of the London Docks was completed, and in 1869 the Suez Canal was opened. Although at first British Mail Ships were prohibited from using the canal, the control of this great inter-oceanic highway was eventually secured by Great Britain, and almost incalculable has been the benefit derived by the mercantile marine from the consequent reduction in the voyage from Europe to India and the Far East—the great highway of Empire.

Most of the large steamship lines started operations in the early part of the nineteenth



R.M.S. "DEE"

1,849 tons, launched in 1842. This was the first vessel of the Royal Mail Steam Packet Co., who now own one of the largest mercantile fleets in the world.

century. About 1830 the East Indian trade, which had been formerly in the hands of the East India Company, was thrown open to all comers, and this event marked the arrival of the ocean tramp-steamers which make up a large proportion of the mercantile marine of to-day.

PROGRESS IN SIZE AND SPEED.

When vessels were built of wood the construction yards were centred about the wood producing districts, and now that iron and steel are used instead, ship-building yards have sprung up in districts close to the iron producing centres. To a certain extent this is what has happened as regards commercial ports also.

The progress in shipbuilding was more methodical than rapid. The following table will give some idea of when and how the sailing ship gave place to the steamer.

1802 First steam tug-boat, *Charlotte Dundas*, designed by Symington.

- 1804 The steamer *Phoenix* made first sea trip from New York.
- 1807 First passenger steamer, *Clermont*, built by Robert Fulton in America.
- 1812 First passenger steamer to be regularly employed in British waters built by Miller in Scotland and named *Comet*.
- 1818 The first cargo steamer, *Rob Roy*, built in Glasgow.
- 1819 Auxiliary paddle steamer *Savannah* (American) crossed the Atlantic.
- 1825 SS. *Enterprise* made first voyage of steamship to India.
- 1834 Establishment of Lloyds Register for British and Foreign Shipping.
- 1838 *Archimedes* made first crossing of the English Channel (Dover to Calais) by screw steamer; and first iron tug-boat (SS. *Stockton*) crossed the Atlantic.
- 1845 SS. *Great Britain*, 2,084 tons, the first of the liners, crossed the Atlantic.
- 1858 The *Great Eastern*, 18,918 tons, 680 ft. long, launched in the *Thames* after taking four years to design and construct.

Although several of the large shipping companies of to-day were in existence long before the coming of the steamship, many

R.M.S. "OHIO"

19,000 tons. One of the smaller vessels of the White Star Line.





THE BEGINNING OF THE P. AND O. LINE

whose names are now known from one end of the world to the other, were either established, or else acquired their first steamer, between the years 1820-50. It will be sufficient to mention here a few examples: Allan Line (1820), Bibby Line (1821), City of Dublin Steam Packet Company (1823), General Steam Navigation Company of London (1824), Aberdeen Line (1824), P. and O. Line (1825), Harrison Line (1830), Royal Mail Steam Packet Co. (1839), City Line (1839), Cunard Line (1840), Pacific Steam Navigation Co. (1840), Wilson Line (1845), Houlder Line (1849), Natal Line (1850), African Steamship Co. (1852), Union Castle Line (1853), British India Steam Navigation Company (1855).

The progress in tonnage and length was temporarily arrested by the troubles experienced with the *Great Eastern* in 1858. Previous to the launching of this vessel, the largest ship afloat was the *Great Britain* of 2,084 tons. Then came the famous but unwieldy leviathan of the age, with a length of 680 ft., against the previous vessel's 300 ft., and a tonnage of 18,918, against 2,084 tons. For 12 years afterwards little progress was made, and no vessels of over 3,000 tons were built. Then came the first of the *Oceanic* class, in 1871. This vessel had a length of 400 ft., and a displacement of 3,807 tons.

A further ten years elapsed before the next great stride. In 1881 the *Servia*, 500 ft. in length and 7,392 tons displacement, was launched, and progress became more general although by no means rapid. It must be remembered, however, that in those days there was little demand for ships of over 5,000 tons because neither the passenger nor the cargo traffic had reached either the bulk or intensity of more modern times. It was twelve years later (1893) when the *Campania*, 600 ft. in length and 12,952 tons displacement, was launched.

From this date progress became far more rapid, although confined very largely to vessels in the Trans-Atlantic service, where the traffic warranted the increase, and the demand was for luxury, steadiness and speed. On many of the ocean routes there was nothing to justify a great and costly increase in length, draught, displacement and speed. In fact on the second most important of the sea highways, that to India and the Far East from Europe, any great and sudden increase in size was prevented by the depth and width of the Suez Canal.

In the year 1899 the second of the *Oceanic* class was launched, and the maximum length rose to 685 ft., with a corresponding increase in the tonnage to 17,247. About five years later the *Baltic* came into being.

The tonnage rose to 23,884 and the length to 709 ft. Only three years elapsed before the next great stride. This was made by the *Mauretania*, 762 ft., and 30,696 tons; then came the *Olympic* (1911) 852 ft., and 46,439 tons; the *Berengaria (ex-Imperator)* (1912) 838 ft., 52,706 tons; the *Majestic (ex-Bismarck)* 915 ft., 56,551 tons; and the *Leviathan (ex-Vaterland)* (1914) 59,957 tons. Other vessels are building which will eclipse these. The Cunard Line have now in hand a vessel of over 70,000 tons; but the ships on all routes, except those between Great Britain and the United States, are far below this high standard of size and luxury.

The largest liners going to and from other parts of the world seldom exceed 20,000 to 25,000 tons. The average British passenger ship has a tonnage of about 15,000, and the cargo steamer between 6,000 and 10,000 tons. The speed of the fastest British ocean liner (*Mauretania*) does not exceed 27 knots. The speed of the German liner *Bremen* is, however, a little greater. The average passenger ship accomplishes about 16 knots and the cargo boat anything from 10 to 15 knots.

The big Atlantic liners cost anything from £1,500,000 to £3,000,000 each, and are decorated by skilled artists in the most elaborate manner, a dining or drawing room suite and fittings frequently cost over £30,000, and this does not include mural decorations, which sometimes double this figure. The average vessel of this type requires from 6,000 to 10,000 tons of best steam coal to fill her bunkers for each eight days' steaming at full speed. Each ship burns about 145,000 tons of coal during the year while covering 105,000 knots and carrying anything from 30,000 to 50,000 passengers. In one day the furnaces of these vessels consume about 1,000 tons of coal.

In this connection it is interesting to note that a country which aims at maritime supremacy needs to be also a big producer of coal or oil fuel, otherwise much of the profit earned by her ships will be expended in foreign countries for the purchase of fuel. The world's production of coal is 1,160,000,000 tons a year, of which the British Empire supplies 320,000,000 tons and the United States 590,000,000 tons. Many of the largest ships are, however, now using oil fuel, and the



P. AND O. LINER "MOOLTAN" (21,000 tons)



THE FIRST CANADIAN PACIFIC SS. "EMPRESS OF JAPAN,"
One of the first "Empress" steamships in the Trans-Pacific

Photo, C. P. Ry.

consumption for this purpose alone exceeds 13,000,000 tons a year, which is equivalent to 20,000,000 tons of coal.

Over 30,000 gallons of fresh water are distilled daily from the sea, and the same number of passengers are, on an average, crossing the Atlantic in British ships at the same time. British shipping is organised, protected and governed by various Acts of the Imperial Parliament, among the most important of which are : the Merchant Shipping Acts of 1854 onwards, Chain Cable and

ing vessels of 100 to 1,000 tons. The British Isles have 260 yards and the Dominions 70.

The average annual tonnage of shipping constructed in the British Isles is approximately 1,270,000 tons, which is about equal to the new construction of all the other countries of the world combined, although the United States of America, which has 45 yards for vessels of over 1,000 tons, is steadily making headway in this important respect, and Holland has made great strides forward, with 35 large yards and 70 smaller ones.



Photo, Canadian Pacific Rly.

A GRAIN AND PASSENGER SHIP ON THE CANADIAN LAKES

Anchor Acts, Passenger Acts, Merchant Seamen Act and the Sea Fisheries Acts, 1868 onwards.

SHIPBUILDING.

The shipbuilding and repairing resources of the Empire are very considerable. There are over 330 building yards for vessels of over 100 tons. Of this number some 20 yards are capable of constructing ocean liners of 25,000 tons upwards ; 101 yards can build vessels up to 6,000 tons, and 209 yards are principally engaged in the building of coast-

The losses of merchant shipping through enemy action during the years 1914-18 amounted to 2,774 vessels with a total tonnage of 9,600,000. Of this number 2,197 ships of 7,828,000 tons were British, but certain large and small vessels captured from the Central Powers helped towards making good the deficiency caused by war losses.

MERCANTILE MARINE OF THE DOMINIONS.

Australia has a Mercantile Marine numbering about 2,460 ships with a total tonnage



THE PASSING OF THE SAILING SHIP *Photo, Australian Government*
The ship "Carradale" under full sail coming into Port Phillip Bay, Australia



THE R.M.S. "AQUITANIA" OF THE CUNARD LINE

One of the great liners of the present day. She has a gross tonnage of 46,000, and is 901 feet in length

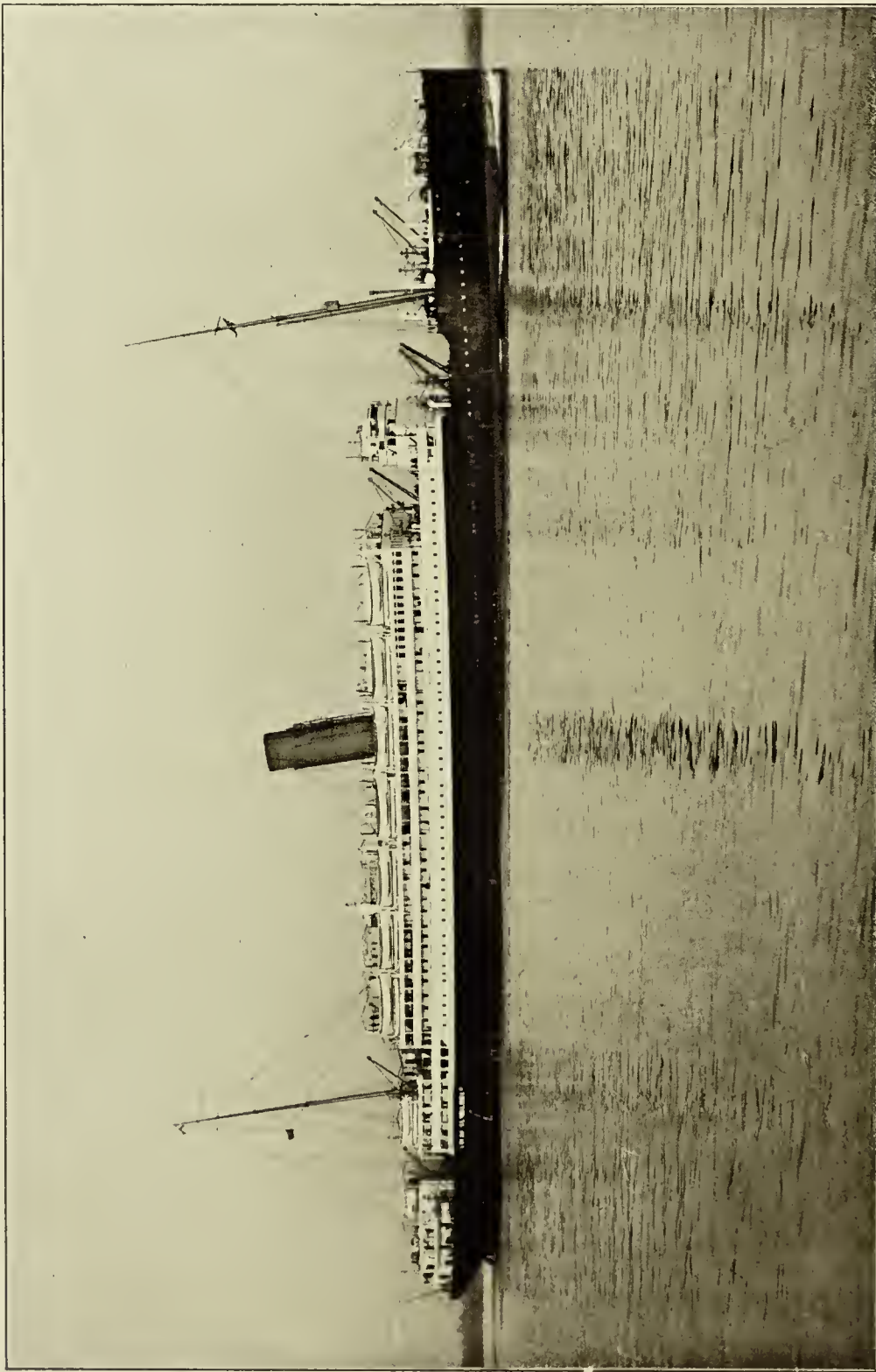


THE PALLADIAN LOUNGE OF THE "AQUITANIA"

One of the largest and most beautifully decorated apartments in any ship afloat. In the style of Sir Christopher Wren, its decorative scheme is carried out in wine red and celandine grey



SS. "MAJESTIC"
Of the White Star Line. One of the largest Vessels in the World (56,551 tons)



R.M.S. "ALMANZORA," OF THE ROYAL MAIL STEAM PACKET CO. (15,551 tons)
South American Service



THE NEW CANADIAN PACIFIC LINER "EMPERESS OF JAPAN"

Photo, C.P. Rly.
Passing Clydebank Shipyard, where the C.P.R. super-liner, "Empress of Britain" is seen just before her launching by H.R.H. The Prince of Wales



CANADIAN PACIFIC LINERS "EMPRESS OF AUSTRALIA" AND "EMPRESS OF CANADA"
AT VANCOUVER, B.C.

Photo, courtesy Canadian Pacific Cruise Dept.



ATLANTIC LINERS IN ONE OF THE 87 DOCKS AT THE PORT OF LIVERPOOL



THE FAMOUS BOOTH LINER "HILDEBRAND"

This vessel penetrates into the heart of the South American Continent by traversing the Amazon River for over 1,000 miles

of over 452,000 tons. For some years the Commonwealth Government maintained a regular service of large passenger and cargo vessels running between Great Britain and Australia, but, proving very unprofitable, this line was sold, and is now maintained by private enterprise as the Commonwealth Line. A privately-owned service is maintained with New Zealand and many of the largest of the Pacific Islands (*q.v.*). The Inter-State Coastal Service connects all the ports on the east, south, and west coasts of

through 60,000,000 tons of freight in one year. The locks are free to all ships and are worked by the United States and Canada jointly. The sea and lake fleets consist of about 3,278 sailing ships and 4,634 steamers, with a total tonnage of about one and a quarter million tons. The average volume of shipping (sea-going) entering and clearing from Canadian ports in one year is approximately 49,000,000 tons, of which about 30,000,000 tons sailed under the Red Ensign (Empire). The Inland International Ship-



OCEAN LINERS IN SYDNEY HARBOUR

Photo, Australian Government

this Island Continent. The tonnage which annually enters and clears from Australian harbours averages 11,100,000, and the number of vessels 3,230, of which 4,000,000 tons sail under the British flag.

The Canadian Mercantile Marine may be divided into two classes: sea-going vessels and those which operate on the Great Lakes. A great proportion of the former are either fishing, sealing or coasting ships. Large freighters of between 9,000 and 12,000 tons are used on those huge inland waterways, the Great Lakes, and one set of locks passed

ping, on the Great Lakes, amounts to 36,000,000 tons a year; and the coastline shipping to 89,000,000 tons per annum. The passenger traffic to and from Canada averages 760,000 persons a year. The fishing industry is an important one, and 80,000 men are employed in the catching operations and 14,000 of both sexes are engaged in canning and curing. The average value of the catch is 55,000,000 dollars a year. The seal and cod fisheries of Newfoundland are important industries, but they will be described in detail under *Newfoundland*.



A BIG CARGO AND PASSENGER SHIP
Alongside the export wharf, Wellington, New Zealand

Photo, New Zealand Government

The Mercantile Marine of New Zealand is in an early stage of development, but, as this Dominion is made up of two large islands and there are good local harbours, the service is bound to increase rapidly. It now amounts to over 600 vessels having an approximate total tonnage of 100,000. The number of vessels entering and clearing from Dominion harbours averages 1,356 of 4,500,000 tons.

The Union of South Africa possesses about 180 ships of varying size, and 5,200 vessels of 15,000,000 tons enter Union ports during the course of the average year. The tonnage of cargo landed is approximately $3\frac{1}{4}$ million tons and that shipped 5 million tons.

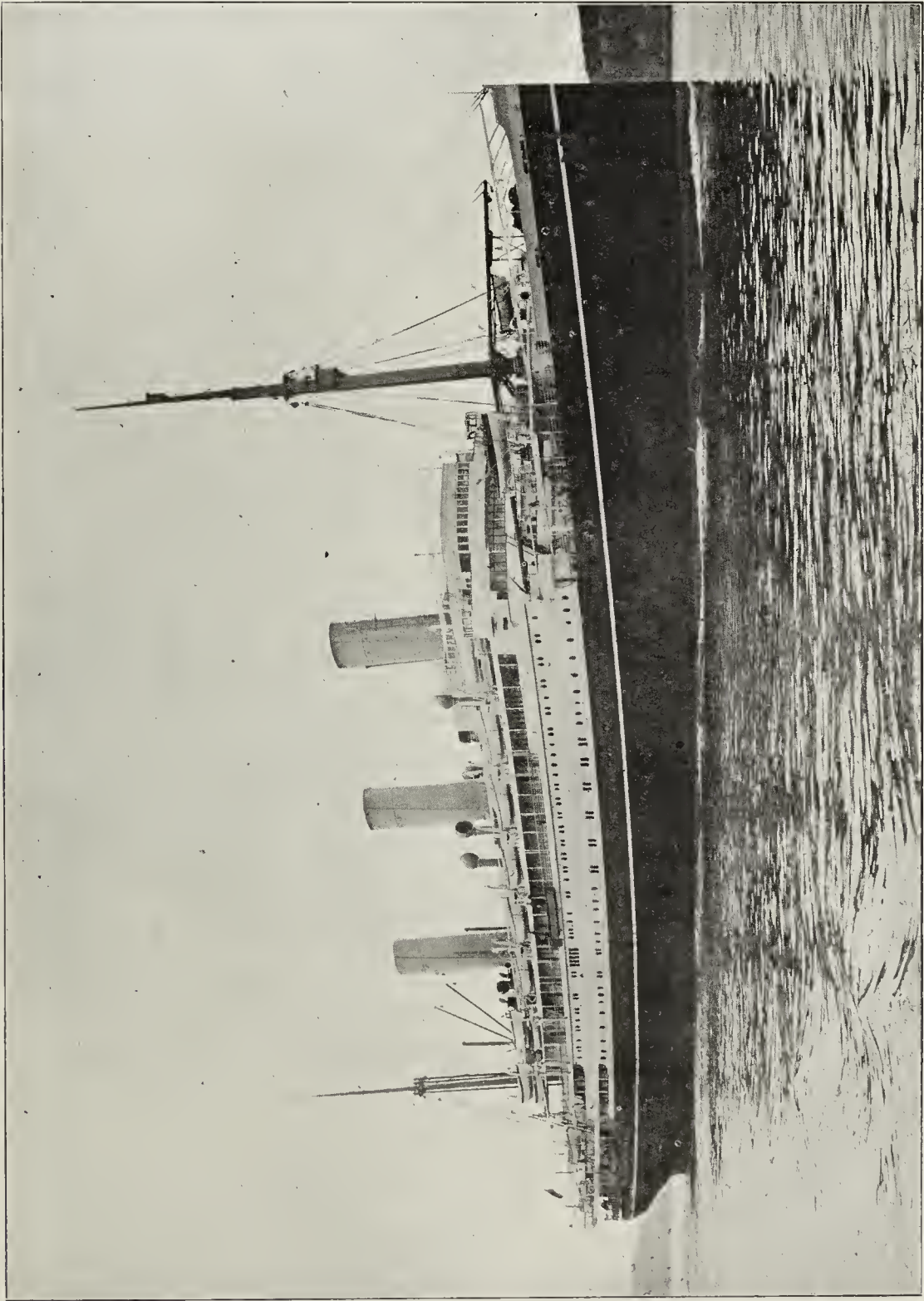
The Mercantile Marine of British India and the British East Indies generally, may be said to number 200 vessels of about 20,000 tons, but it is the trading ground for a large number of British tramp steamers, and the various ports are busy and prosperous. Certain of these ports are on the sea routes from Europe to the Far East and are rendered busy by the continuous through traffic. The number of sea-going ships annually

entering and clearing from the ports of British India is 7,500, with a gross tonnage of 17,100,000. About 71 per cent. of this volume sails under the British flag.

It should be pointed out here that many of the smaller ships included in the mercantile fleets of the Dominions are not registered at Lloyds, and therefore do not figure in the total statistics for the whole Empire given at the beginning of this section.

IMPORTANCE OF SEA-BORNE TRADE.

One of the circumstances that originally helped to encourage the Mercantile Marine of Great Britain has now become what is considered by many to be a serious menace to national safety. The fact that the British Isles can produce sufficient food-stuffs to feed only a small part of their population has in the past encouraged ship-owners to construct vessels to bring food supplies from overseas; now these British owned craft have become so numerous and their safety so vitally important, that vast provision,



R.M.S. "EMPRESS OF AUSTRALIA,"

This vessel of the C.P.R. Line maintains a regular service between British Columbia and the Far East. She has a displacement of 21,861 tons and is 589 feet in length

in the form of Navies (*q.v.*), has to be maintained by the Empire to protect this widely distributed trade. Besides the numerous food requirements, there is the still larger raw material import trade which is necessary to keep the factories and industries at work. In all, and counting the value of the ships themselves (other than warships) between £2,500,000,000 and £3,000,000,000 in British and Colonial property is on the high seas each year, or an average of about £8,000,000 per day. Between 80 per cent. and 90 per cent.

have to face when considering the position of the British Mercantile Marine.

SEA-TRAINING.

There are three distinct departments of the Mercantile Marine: (1) The Executive or Navigating; (2) The Engineering; (3) The non-executive. A distinct training is needed for the first two departments, but the third is principally recruited from ordinary shore employment. In the first branch are officers and seamen. The officers receive their



A LINER LOADING AT APAPA WHARF, NIGERIA

Almost opposite to Lagos, and on the mainland, is the modern port of Apapa. It is considered by many to be the future "Liverpool" of West Africa

of this huge total is carried in vessels flying the British flag.

The question of food supply in war-time is one that is always under the consideration of the "Committee of Imperial Defence," and each year brings it more into prominence as the shrinkage of arable land in the British Isles averages over 100,000 acres per annum, while there is a large yearly increase in most parts of our overseas Empire.

The complex nature of the case, and the divided and various opinions concerning it, render this question of supplies in war-time one of the most important that British people

training in one of the two Cadet ships, H.M.S. *Conway*, Rock Ferry, Liverpool, and H.M.S. *Worcester*, Greenhithe, Kent. Each of these vessels train about 100 per annum, and has apprentices and midshipmen in sea-going ships. There is also the Nautical College, Pangbourne. Officers have to pass Board of Trade examinations and serve certain stipulated periods in each grade, *i.e.*, 2nd mate, mate, master (captain) and extra master. The men receive training in one of the Merchant Service training vessels, *i.e.*, the *Gravesend Sea School*; the training ship *Arethusa*, Greenhithe, Kent; the *Indefatig-*

able, Rock Ferry, Birkenhead; the *Mercury*, Southampton, for boys of good character only; the *Warspite*, Greenhithe, Kent; and the *Cornwall* reformatory vessels of Purfleet and other like ships. In some cases the seamen come from the Royal Navy, whilst in others they are recruited from fishery vessels, or ship direct into merchant vessels as ship's boys. A seaman is eligible to sit for the Board of Trade examinations for officers.

The Engineering branch is composed of three ranks: (1) Engineers (officers); (2) engine-room hands; (3) stokers. The engineers mostly enter the Mercantile Marine Service from one of the large marine engineering works on shore, and join first as

and stewards and stewardesses, who mostly enter direct as under-stewards and under-stewardesses.

The total personnel of the British Merchant Service is about 554,000, of whom over 500,000 are British, nearly 20,000 Lascars, and the remainder foreigners, mostly Norwegians, Swedes, and Dutchmen. There are about 25,000 British captains on Lloyd's list.

BOARD OF TRADE.

The Marine department of the Board of Trade is the ruling authority of the British Merchant Service, and supervises all matters relating to mercantile trade. Amongst other



OFFICERS AND MEN OF THE NIGERIAN MARINE

Representative of the crews of the river steamers on the Niger and other great fluvial highways of West and Central Africa

Photo, Elder Dempster Co. Ltd.

junior engineers, eventually serving the required time and passing the necessary examinations qualifying them to act as 2nd or 1st (chief) engineers. The engine-room hands (greasers) are mostly recruited from ordinary workshops and engineering employment ashore. Stokers very often enter direct and are generally men belonging to the port from which the vessel sails. There are also electricians, who are generally trained electrical engineers from shore employment, and wireless operators who receive a combined training in electricity and wireless telegraphy.

The purely non-executive branch comprises several different occupations such as pursers and clerks, who enter direct as junior clerks or purser's assistants; cooks or chefs, who are shore-trained in their arts and crafts;

and duties this Government Office is interested in the following: Survey of Vessels, Compulsory examination of Captains (Master Mariners), Officers (Mates), and Engineers; the establishment of shipping offices at the various ports for the employment of seamen and granting discharges, and, to a certain extent, the control of the Pilot Services. The Harbour Department deals with all matters relating to Harbours, Rivers and shore details. All sea fisheries are under the direction of the Fisheries Department, while the financial portion of all these varied interests is dealt with by a special Financial Department. The Board of Trade obtains its powers from the Merchant Shipping Acts. This Department of the Government is described under *Civil Services of the Empire*.

LLOYDS.

The chief marine society is "Lloyds"; it was established in Tower Street, London, by Edward Lloyd about 1690, later being removed to Lombard Street, and again, in 1772, to the Royal Exchange, when it had

respect of shipping, cargoes, freights." The Society has about 1,500 agents distributed all over the world, besides many expert advisers. Among its various projects are included signal stations and an enquiry office. Lloyds also issue many publications,



THE ROYAL EXCHANGE

The great shipping and marine insurance centre of the Empire. The home of Lloyds for 156 years, from 1772 to 1928. The Shipping centre extends eastwards from this point

about eighty members. The objects of the Society are defined by an Act obtained in 1911 (which repealed a previous one of 1870) as "The carrying on by members of the Society of the business of Insurance of every description, the advancement and protection of the interests of members of the Society in connection with the business carried on by them as members of the Society and in

amongst which are : *Lloyds Register of Shipping*, *Lloyds List* (daily), *Shipping Index*, *Lloyds Calendar* (end of each year), *Lloyds Book of House Flags and Funnels*, etc. A Captain's Register is kept containing the names of 25,000 Merchant Master Mariners. A register of yachts is also published containing the names and particulars of about 8,000 vessels. The Society have what is

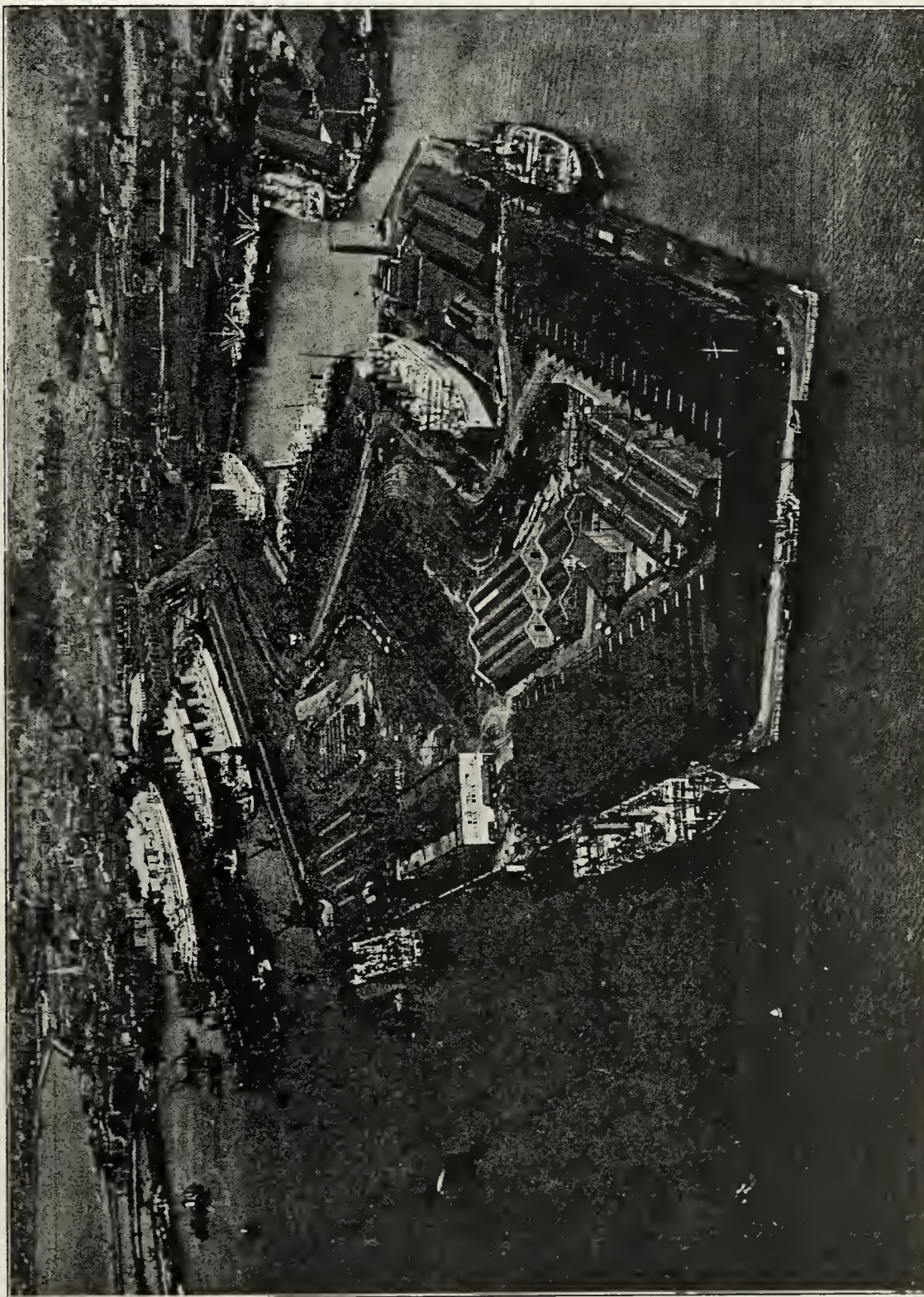


Photo by kind permission of the Southern Ry.

THE DOCKS, SOUTHAMPTON

Aeroflms

termed a *Loss Book* where the particulars of all lost vessels are recorded. Two medals are issued, one for life saving and the other for meritorious services. Lloyds register of British (and foreign) shipping is voluntarily maintained by the shipping community, and has for its object the classification and registration of all vessels. It is a recognised authority throughout the world.

The Society of Lloyds is managed by a representative committee of seventy-two and a large body of expert advisers, representing the various arts and crafts relating to sea affairs. There are also various Branch Committees, which also have expert advisers attached. The Society has Government authority, and acts as such in testing anchors, cables, assigning freeboard and determining load-lines. Since the Act of 1894 about 30,000 or more vessels have been so examined. Most new vessels are now built under the supervision of Lloyds agents.

MARINE SOCIETIES.

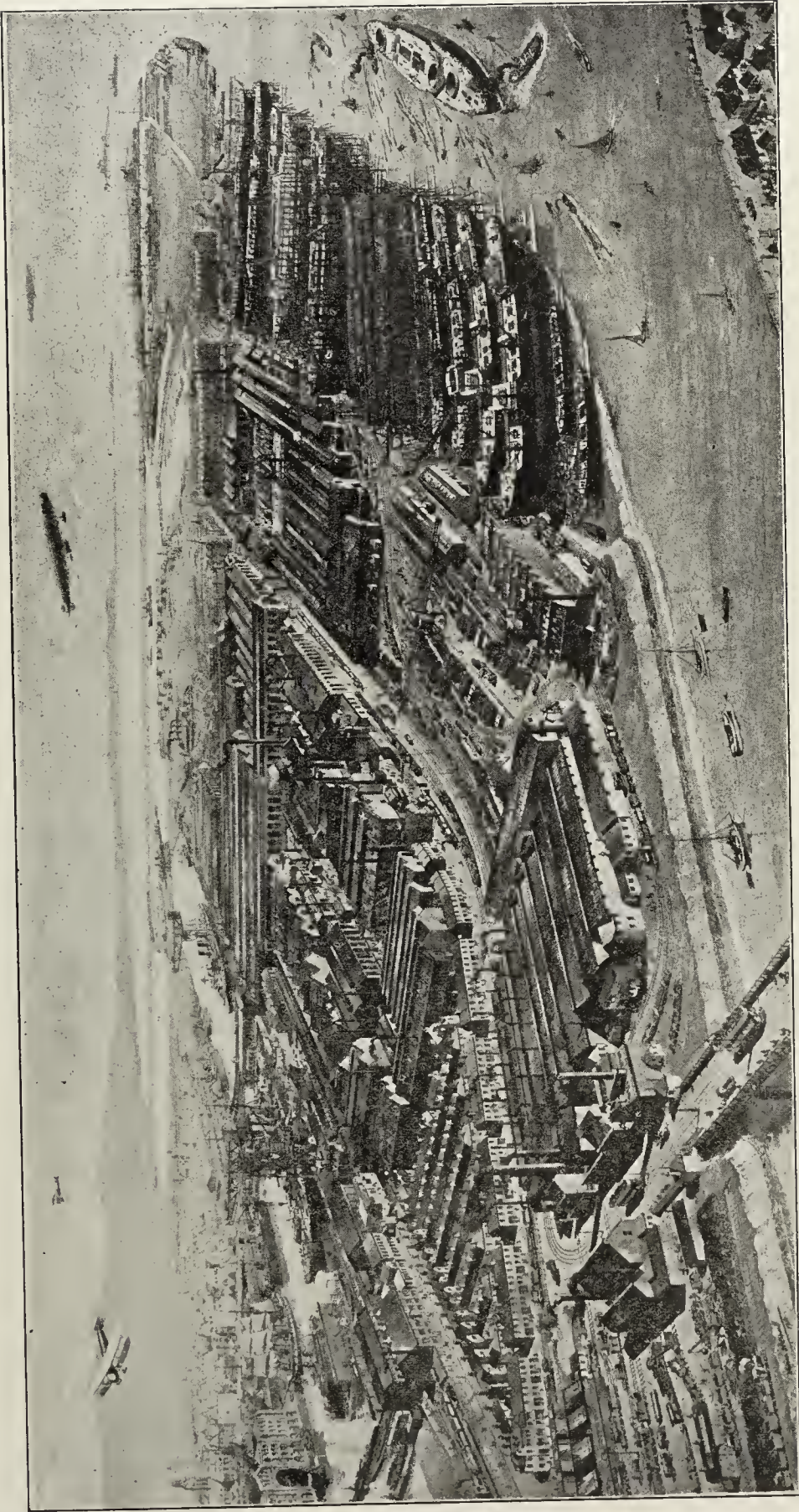
Among the many societies formed to promote and assist the interests of the British Mercantile Marine must be mentioned the Chamber of Shipping which consists of over thirty associations representing the ship-owning industries of Great Britain and Ireland and is interested in all matters relating to British and Colonial Merchant Shipping. The Shipping Exchange, which consists of over 2,000 members. The Shipwrecked Fishermen and Mariners' Society, Pall Mall, London, is a Society formed for what its name implies—the helping and rewarding of shipwrecked mariners and fishermen of all kinds. The Imperial Merchant Service Guild, Lord Street, Liverpool, is a Society composed of captains and officers in the Merchant Service to forward, promote and protect their interests and to help them in any actions or enquiries arising through their employment. The



SHIPPING IN THE THAMES

Photo, L. Toms & Co. Ltd.

Only comparatively small vessels go further up the Thames than the Tower Bridge (seen in the distance) and only river craft can pass under London Bridge

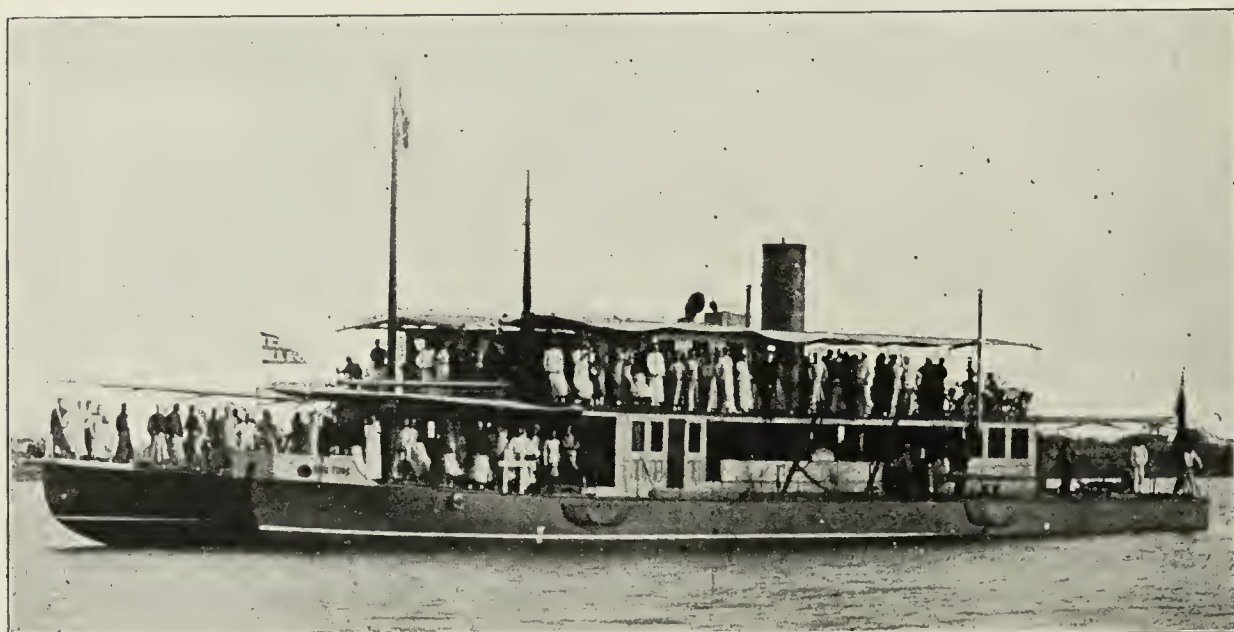


THE NAVAL CONSTRUCTION WORKS, BARROW-IN-FURNESS
(Messrs. Vickers Limited)

Mercantile Marine Service Association is a similar institution, and the Navigators' Insurance has for its main object the insurance of the Board-of-Trade Certificates of Officers and their legal protection. The Royal National Lifeboat Institution is certainly one of the most worthy of all the societies connected with sea life. It maintains a fleet of several hundred lifeboats situated all round the coast of the British Isles, and is solely responsible for the saving of thousands of lives since its inauguration in 1824. Other societies attend to the mental and spiritual welfare of seamen. One ex-

work during the year. India has its own Marine Survey Service and two ships are continually employed. Over 8,000 square miles of ocean are sounded every year and about 1,000 miles of coast line are surveyed by these two services. Besides this, dangerous sands are watched, river and harbour mouths and entrances examined, tides and ocean currents are checked, and the whole of such information is recorded and used in drawing charts, which are used throughout the Naval and Mercantile Services.

Home pilotage is under the authority of *Trinity House*, which controls all the pilots



Photo, John J. Thorneycroft & Co. Ltd.

SHALLOW - DRAFT, TUNNEL - STERN BOAT

Built in England for service on the Yang-tse-Kiang River, China

cellent institution provides libraries for the crews of British vessels, another supplies medical assistance in the fishing areas of the North Sea, and there are several orphanages and homes for aged sailors and their dependents, maintained by voluntary contributions. The Navy League, which has done so much to further Imperial interests, is, however, more intimately concerned with the Navy than the Mercantile Marine.

PILOTAGE.

Surveying and charting is the work of a service attached to the Imperial Admiralty, and about twelve vessels are engaged on the

navigating the seas around the British Isles. This office, situated on Tower Hill, London, was incorporated by King Henry VIII in 1514, and its main functions are : (1) To act as the Authority for Lighthouses, light-vessels, beacons, buoys, fog and danger signals and wrecks around the British Isles ; (2) Head of the Home Pilotage Services and other minor services and occupations, connected with these two main functions.

The Bengal Pilot Service is under the supervision of the Government of India, and all vessels using the Port of Calcutta are obliged to ship a pilot, from the pilot vessel at the mouth of the Hoogly River.

BRITISH PORTS AND DISTANCES

Name of Port.	Distance from England.	Remarks.
NAUTICAL MILES from—		
ALEXANDRIA - - -	2,954 Southampton	- Egyptian
ADEN - - -	4,380 „	- Main Route to Far East, and Gate of Red Sea
ADELAIDE - - -	10,658 „	- Capital of South Australia
ASCENSION - - -	3,637 Plymouth	- Cable Station
BELIZE (Brit. Honduras) -	4,691 Liverpool	- Near Panama Canal
BERBERA - - -	4,520 „	- British Somaliland (near Aden)
BERMUDA - - -	4,440 Liverpool	- Naval Station.
BRIDGETOWN (Barbados) -	3,624 „	- Important Port of Call and Exchange
BOMBAY - - -	6,030 Southampton	- Principal Port of Western India
BRISBANE - - -	12,205 „	- Capital of Queensland, Australia
CALCUTTA - - -	7,933 London	- Principal Port and late Capital of India
CAPETOWN - - -	5,947 Southampton	- Capital of "The Union of South Africa"
COLOMBO - - -	6,472 „	- Capital of Ceylon and on Main Route to East
DURBAN (<i>via</i> Cape) - - -	6,750 „	- Chief Port of Natal, South Africa
PORT STANLEY (Falkland Islands)	7,364 London (<i>via</i> Monte Video)	- Off South America, near Cape Horn
FREMANTLE - - -	9,307 Southampton	- Important Australian Port
GEORGETOWN (B. Guiana)	4,010 Liverpool	- Capital British Guiana, and only British Port in South America
GIBRALTAR - - -	1,143 Southampton	- Famous Naval Station, and "Gate" of Mediterranean
HALIFAX - - -	2,485 Liverpool	- Canadian Port
HONG-KONG - - -	9,720 London	- Principal British Possession in Far East
HOBART (<i>via</i> Cape) - - -	10,946 Southampton	- Capital of Tasmania
KINGSTON (Jamaica) - - -	4,026 Liverpool	- Capital of Jamaica ; important Port
KARACHI - - -	5,845 Southampton	- Port for the Punjab
PORT LOUIS (Mauritius) - -	8,303 „	- Capital of Mauritius
PORT SUDAN - - -	3,780 „	- Port in the Red Sea
LAGOS (W. Africa) - - -	3,925 „	- Port in British Nigeria
MADRAS - - -	7,052 „	- Famous Indian Port
MALTA - - -	2,134 „	- Naval Station, heavily fortified
MOMBASA (Kilindini) - - -	5,980 „	- Terminus and Port for British East Africa and Uganda Railway
MELBOURNE - - -	11,158 „	- Capital of Victoria, Australia
PORT SAID - - -	3,070 „	- Mediterranean entrance to Suez Canal
PORT MORESBY (British New Guinea)	13,509 „ (<i>via</i> Australia)	- Principal Port in Papua
PORT OF SPAIN (Trinidad)	3,740 Liverpool	- Capital of Trinidad, British West Indies
QUEBEC - - -	2,625 Liverpool	- Capital of Quebec, Canada
RANGOON - - -	7,707 Southampton	- Capital of Burma
SINGAPORE - - -	8,050 „	- Capital of Straits Settlements ; distributing Port
SYDNEY - - -	11,733 „	- Capital of New South Wales, Australia
ST. JOHN'S (Newfoundland)	1,960 Liverpool	- Capital of Newfoundland ; seal-fishing centre
SEYCHELLES - - -	5,779 London	- Naval Station ; Islands, Indian Ocean
SANDAKAN (British North Borneo)	9,088 London (<i>via</i> Singapore)	- Capital of British North Borneo
SIERRA LEONE (Freetown)	2,800 Southampton	- West Africa Colony of Sierra Leone
SHANGHAI - - -	10,573 London	- International Port in China
WELLINGTON - - -	12,090 „	- Capital of New Zealand

The navigation of this waterway, approximately 100 miles to Calcutta, is extremely difficult, dangerous and changeable, and the Pilot Service is composed of highly trained and efficient men, who have previously served an apprenticeship in the British Merchant Service, afterwards entering the

B.P.S. direct at a comparatively early age. They receive high salaries and pensions.

The laws relating to pilotage were consolidated by an Act in the reign of George III, and this was amended in 1825 and in 1853, and 1854 ; further additions and amendments were introduced and embodied in the Mer-

chant Shipping Act. This Act of Parliament is from time to time revised to suit the changing conditions, and all pilotage authorities (besides other Marine departments) obtain their powers from it.

British ports overseas have their own pilots, the actual ruling authority differing according to the part of the Empire in which the port is situated. In some places there are two kinds of pilots, those who bring ships in from the sea, and those who take vessels into harbour or dock.

The accompanying tables give the principal ports of the British and Indian Empires, together with their distances from England, and from other parts of the Empire.

INTER-COLONIAL PORTS AND DISTANCES.

Port.		Distance to	Port.
		<i>Nautical Miles</i>	
Capetown	- -	6,150	Melbourne
Colombo	- -	1,577	Singapore
"	- -	1,231	Calcutta
"	- -	580	Madras
"	- -	1,285	Rangoon
"	- -	4,386	Capetown
Bombay	- -	883	Colombo
Durban	- -	1,552	Mauritius
Wellington	- -	1,233	Sydney
"	- -	940	Hobart
Hong-Kong	- -	3,017	Colombo
Port Said	- -	1,310	Aden
Gibraltar	- -	991	Malta
Victoria (B. Columbia)	- -	5,780	Hong-Kong
"	" -	6,818	Sydney
Hong-Kong	- -	853	Shanghai
Colombo	- -	4,770	Melbourne



MINING

THE mining industry is one of direct primary production, and as such is of the greatest possible economic value. Its ramifications permeate almost every industry, for gold and silver are still, very largely, the standards of currency; coal is the main producer of power; iron, copper, tin, lead and other minerals are the materials by the aid of which the power obtained from coal is controlled and utilised; oil is a modern rival of coal; and upon the production of power not only do all manufacturing industries depend for existence and prosperity, but, from the everyday life of the citizen to the defence of empires—in all their complicated phases—it is the primary factor. It has, in fact, been stated that there is scarcely one hour in the life of a civilised being in which he is not dependent, directly or indirectly, on this industry. But these are well-known facts which need only be brought to mind to enable a proper realisation of the importance of the mining industry to the greatest manufacturing nation in history.

BRITISH ISLES.

The total number of mines being worked in Great Britain is 3,200, and the number of persons employed averages 1,240,000. In addition there are 5,400 quarries, giving employment to 80,000 people. The total annual value of all minerals obtained from mines in the British Isles ranges from £222,000,000 to £230,000,000. Coal and iron are the two most important products. The quantity of the former annually raised averages about 240,000,000 to 250,000,000 tons, valued at £220,000,000; and of the latter, 9,000,000 to 10,000,000 tons, valued at £2,700,000 to £3,000,000.

The principal coal fields are situated in the following counties (maximum production).

ENGLAND—			Million tons.
Yorkshire	-	-	38-39
Durham	-	-	37-38
Lancashire	-	-	22-23
Derbyshire	-	-	16-17
Staffordshire	-	-	13-14
Northumberland	-	-	13-14
Monmouthshire	-	-	13-14
Nottinghamshire	-	-	11-11½
Other Counties	-	-	13-14
WALES—			
Glamorgan	-	-	33-34
Other Counties	-	-	6- 6½
SCOTLAND—			
Lanarkshire	-	-	16-17
Other Counties	-	-	22-23

A great variety of minerals are found in Great Britain, the principal of which are :—

Mineral.				Tons.
Iron	-	-	-	10,000,000
Lead	-	-	-	15,500
Iron pyrites	-	-	-	6,700
Tin (dressed)	-	-	-	5,000
Zinc	-	-	-	3,000
Copper ore	-	-	-	280
Manganese	-	-	-	12,900

Among non-metallic products the following are the principal :—

				Tons.
Coal	-	-	-	250,000,000
Limestone	-	-	-	13,000,000
Igneous rocks	-	-	-	9,000,000
Clay and shale	-	-	-	13,000,000
Sandstone	-	-	-	3,000,000
Oil shale	-	-	-	2,500,000
Salt	-	-	-	2,000,000
Chalk	-	-	-	4,000,000
Gravel and sand	-	-	-	4,000,000
Slate	-	-	-	300,000
Gypsum	-	-	-	400,000



Photo by kind permission of the "Iron and Coal Trades Review"

PNEUMATIC COAL HANDLING PLANT

Discharging coal from the dumps and conveying it to the bunkers by means of the "Simon" pneumatic plant

Other non-metallic products are barium, arsenic, ochre, fluor-spar, and mica. The principal mining districts, together with the minerals produced, are as follows:—

Iron Ore—Yorkshire (Cleveland), Lincoln, Leicester, Northampton, Cumberland, Lancashire, Stafford, Scotland (Ayr, Renfrew, and Lanark). *Copper*—England (Cornwall), Wales (Carnarvon). *Lead*—Derby, Durham, Isle of Man, Westmorland, Wales (Flint and Cardigan), Scotland (Dumfries and Lanark). *Tin*—Cornwall. *Zinc*—Northumberland, Cumberland, Isle of Man, Wales (Denbigh and Cardigan). *Gold*—Wales (Merioneth), *Silver*—Cornwall. *Manganese-ore*—Derby, Devon, Wales (Carnarvon and Merioneth).

AUSTRALIA.

Although the annual return from the mining industry is now considerably less

than that yielded by the pastoral, agricultural and manufacturing industries, nevertheless it was the discovery of gold in 1851 that attracted large bodies of population to Australia, and thus laid the foundation of its nationhood. This question has been alluded to at greater length elsewhere (see AUSTRALIA). It will be sufficient to note here that, while the population of Australia in 1841 was only 221,000, the total had increased to over 1,168,000 by the end of 1861. The large production of gold, silver, copper and tin, the extent of the coal deposits, the presence of large quantities of iron ore, and the great variety of minerals found in appreciable quantities, suggests that the future history of mining will, in all probability, be more remarkable even than that of the past. The extent of the total mineral wealth of Australia cannot yet be regarded



WORKING A POWER-HOIST IN A COAL MINE
Photo by kind permission of the "Iron and Coal Trades Review"



Photo by kind permission of the "Iron and Coal Trades Review"

IN ONE OF THE UNDERGROUND GALLERIES OF THE POOLEY HILL COLLIERY

as well ascertained, since the mineral exploration of the country is, after all, still in its infancy. The presence of considerable deposits of valuable minerals has long been known. Thus, coal was discovered in 1797, and a shipload was exported to Bengal in 1799; silver was discovered by Count Strzelecki as early as 1839, and was worked as early as 1864; copper mining dates back to 1844; lead to about 1848; iron to about 1850; while the discovery of gold in paying quantities dates back to 1851. Cobalt, nickel, manganese, chromium, tungsten, molybdenum, mercury, antimony, bismuth, zinc, and radio-active ores, have all been found, some in fairly large quantities.

Among the more valuable non-metalliferous substances may be mentioned kerosene shale, graphite, alunite, asbestos, diatomaceous earth, clays, ochres, and among building materials, sandstones, syenites, granites, basalts, augiteandesite, porphyries, serpentines, slates, limestones, and marbles. Precious stones include diamonds, emeralds,

rubies, sapphires, amethysts, opals, turquoise, topaz, garnets, agates and moonstones. In general it may be said that the variety of Australian mineral wealth is very considerable.

Remarkable masses of gold have been found in the Commonwealth at various times. The first "nugget" was discovered at Hargraves, in New South Wales, in 1851, and weighed a little over 1 lb. The Burrandong nugget, found near Orange in the same year, weighed 2,217 oz. 16 dwt., and the "Brennan" was sold in Sydney for £1,156. The "Jubilee," found in 1887, weighed 347 oz. In Victoria a nugget which weighed 1,620 oz. was found in 1853 at Canadian Gully. The "Welcome," found near Ballarat in 1858, weighed 2,217 oz. while the "Welcome Stranger," unearthed in 1869 at Mount Moliagul, near Dunolly, weighed 2,315 oz., of which 2,284 oz. were fine gold and 31 oz. silver, and was valued at £9,534. Probably the largest mass of gold ever found was obtained at Beyer and Holtermann's claim at Hill End, New South

Wales, in 1872. The specimen was 4 ft. 9 in. high, 2 ft. 9 in. wide, and about 4 in. thick, and contained only a comparatively small admixture of quartz. An offer of £13,000 was refused for this prize when it was first exhibited. A miner in Western Australia "dollied" out £15,000 worth of gold in 1890 from the cap of a reef on the Yalgoo field, and £20,000 worth was won in a few days by the discoverer of the Wealth of Nations mine.

The Broken Hill silver field, which was discovered in 1882, has been one of the richest and most productive mining centres in the world, but considerable labour trouble in this area during recent years has seriously affected the output.

Although the return from iron is at present comparatively small it by no means represents the possibilities of working this metal, there are vast deposits throughout the Commonwealth which have never yet been touched.

The average annual production of coal is valued at £12,000,000 ; the bulk of the yield being contributed by New South Wales. In the Newcastle and Northern District of this State is situated one of the most productive coalfields in the world, the coal-bearing strata extending from the Newcastle Harbour to a distance of about 50 miles inland, and containing practically inexhaustible supplies of excellent coal. There are extensive deposits in the Southern District, while the Western coalfields are in close proximity to vast stores of limestone and high-grade iron ore. Victoria possesses deposits of valuable black coal in addition to immense deposits of lignite and brown coal, the beds in the Latrobe Valley being over 800 ft. in thickness. In the event of the application of a cheap and efficient process of manufacturing fuel briquettes from the product, the value of these vast accumulations of soft coal can hardly be overestimated. An extensive deposit of good,



Photo by kind permission of the "Iron and Coal Trades Review"

PIT PONIES OVER TWENTY YEARS OF AGE

The goggles over the horses' eyes are to prevent blindness on being brought to the surface after years underground

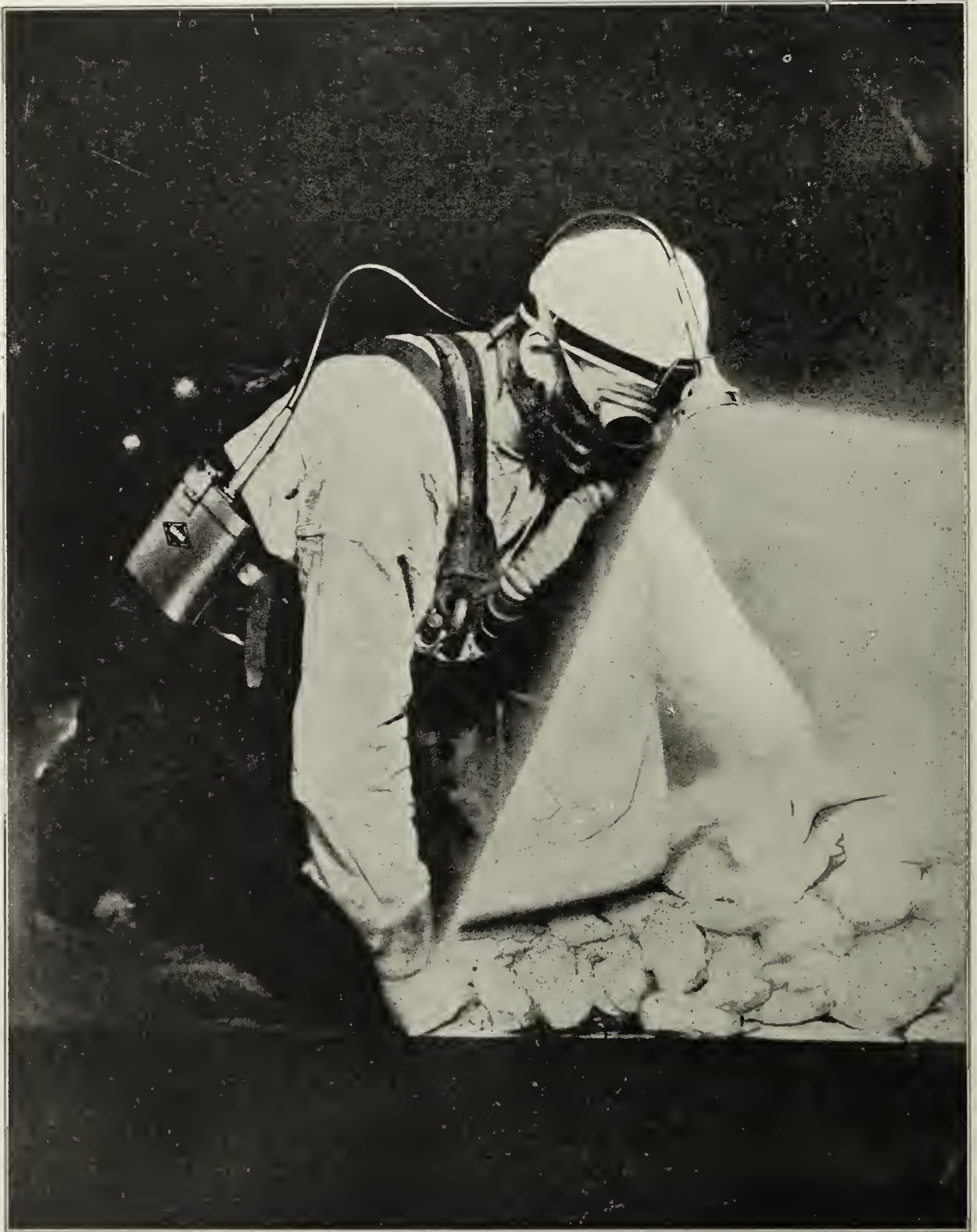


Photo by kind permission of the "Iron and Coal Trades Review"

RESCUE WORK IN MINES

A Rescue Brigade man at the coal face with Oldham Cap Lamp (and respiratory apparatus which enables him to work amid the most poisonous fumes)

hard, clean coal was discovered through boring in 1908 in the Powlett River district, and the output has already assumed large proportions. Good coal is also mined in Queensland, Western Australia, and Tasmania. In view of the very great wealth in coal, iron, and limestone, possessed by the Commonwealth, its success as a manufacturing country should be assured.

Salt is produced from salterns in South Australia, and also in Victoria; and there are deposits of almost pure chloride of sodium on

				£
Gold	-	-	-	2,100,000
Copper	-	-	-	600,000
Tin	-	-	-	850,000
Silver-Lead	-	-	-	5,000,000
Coal	-	-	-	12,000,000
Precious stones	-	-	-	28,000
Iron and flux	-	-	-	1,400,000

The total number of people engaged in the mining industry is approximately 70,000. Liberal State aid is given to miners and prospectors, especially in North and Central Australia (*q.v.*). The total mineral pro-



IRON MINING

Photo, "Iron and Coal Trades Review"

General view of the ground and wharf, Port Clarence, showing cranes and transporters at work

some islands near Fremantle (W.A.). Gems are found throughout the Commonwealth, the most important being the opal, many beautiful varieties of which are found in New South Wales and Queensland. The official returns by no means adequately represent the total production, as much of the opal raised is sold to foreign buyers on the fields and is not recorded.

The annual value of the total mineral production of Australia amounts to about £23,000,000, divided principally among the following :—

duction of the whole of Australia since the commencement of mining statistics is about £1,147,000,000.

CANADA.

Canada's mineral industry, third in importance among the primary industries of the Dominion, being surpassed in output value only by the great basic industries of agriculture and forestry, brings to the nation a prestige beyond the monetary measure of the mineral output. First in nickel, first in asbestos, second in cobalt, third in gold,



THE SPRAY POND AT THE ALFRETON COLLIERY

Photo, "Iron and Coal Trades Review"

third in silver, fourth in lead and copper, and sixth in zinc among the world's producers, Canada enjoys an enviable position in the mining world with every prospect of continued expansion. Thirty-five per cent. of the freight tonnages moved in Canada are to and from the mines.

It is almost two hundred years since the mining and metallurgical industries of Canada were founded. Operations were at first confined to coal and iron ore, and the

Cobalt, unknown for another century and a half.

Though isolated discoveries like these continued, systematic prospecting began only in the middle of the nineteenth century with the setting up of the Geological Survey of Canada under Sir William Logan, when the herculean task of exploring, mapping and geologically surveying Eastern Canada was begun. In 1863 a comprehensive "Geology of Canada" was issued. Thus



Photo, "Iron and Coal Trades Review"

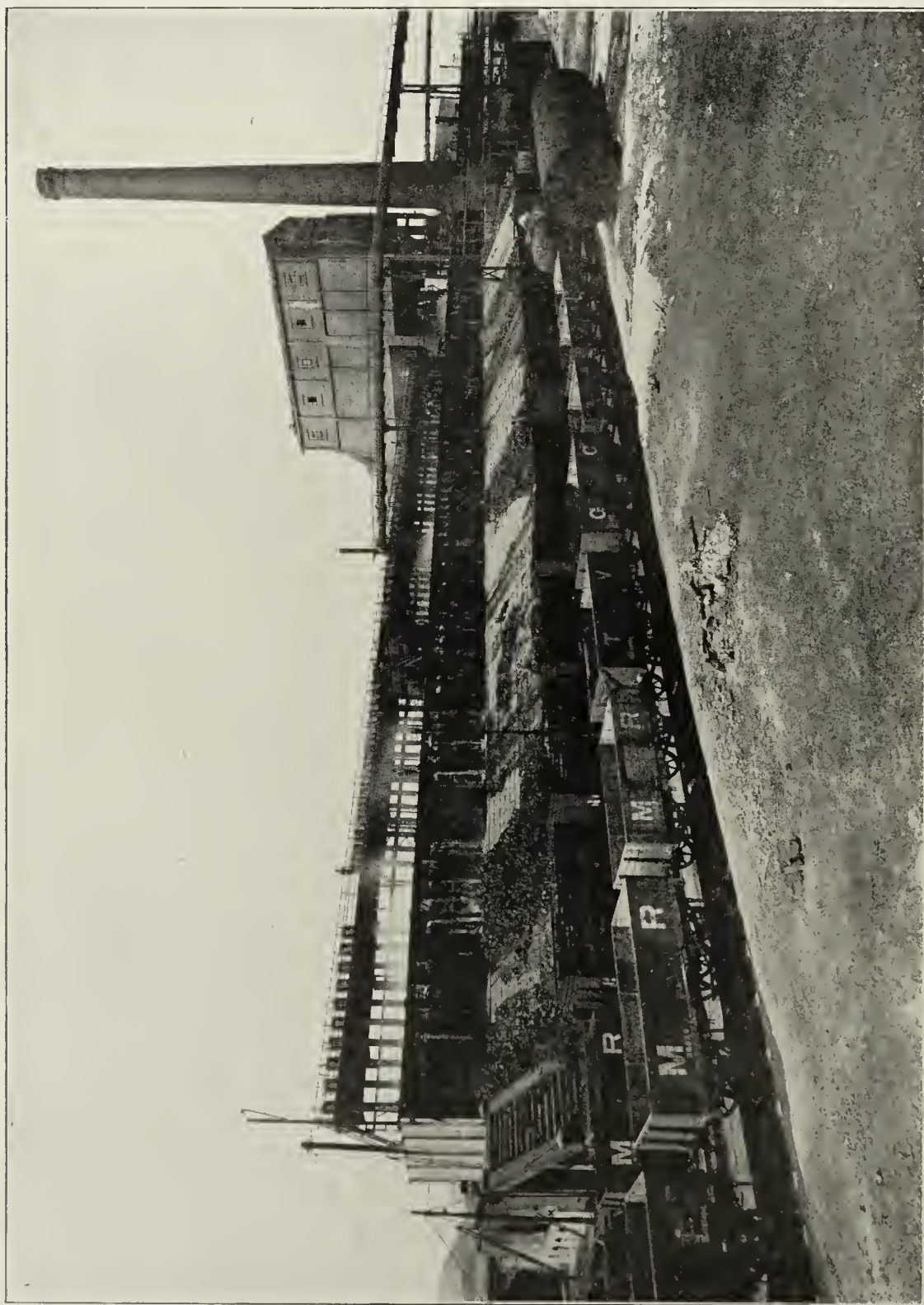
GENERAL VIEW OF THE CONSETT IRON CO.'s PLANT

manufacture of cast and wrought iron. The coal seams of Cape Breton have the distinction of being the first to be worked in North America. Metallurgy began on the St. Maurice River, when, in 1730, a furnace for smelting the local bog iron ores was established; these forges continued to operate until 1880.

Another historic discovery (1740) was that of a deposit of argentiferous galena (Anse à la Mine) on lake Temiskaming, one of the oldest known metalliferous deposits in North America—less than ten miles from the fabulously rich silver veins of

between 1843 and 1863, may be said to have occurred the real inauguration of the mining industry in Eastern Canada, including iron mining in various parts of Ontario and Quebec; the mining of copper ore in the Eastern Townships of Quebec, the washing of alluvial gold on the St. Francis and other tributaries of the St. Lawrence; and the institution of lode-gold mining in Nova Scotia. Meanwhile the Fraser River and Cariboo gold rushes of the 'fifties had founded the colony of British Columbia.

While the work of the Geological Survey thus marked the first important epoch in



A BATTERY OF COKE OVENS

Photo, "Iron and Coal Trades Review"



"THE GOLDEN MILE," KALGOORLIE.
The centre of the West Aus'tralian Goldfields

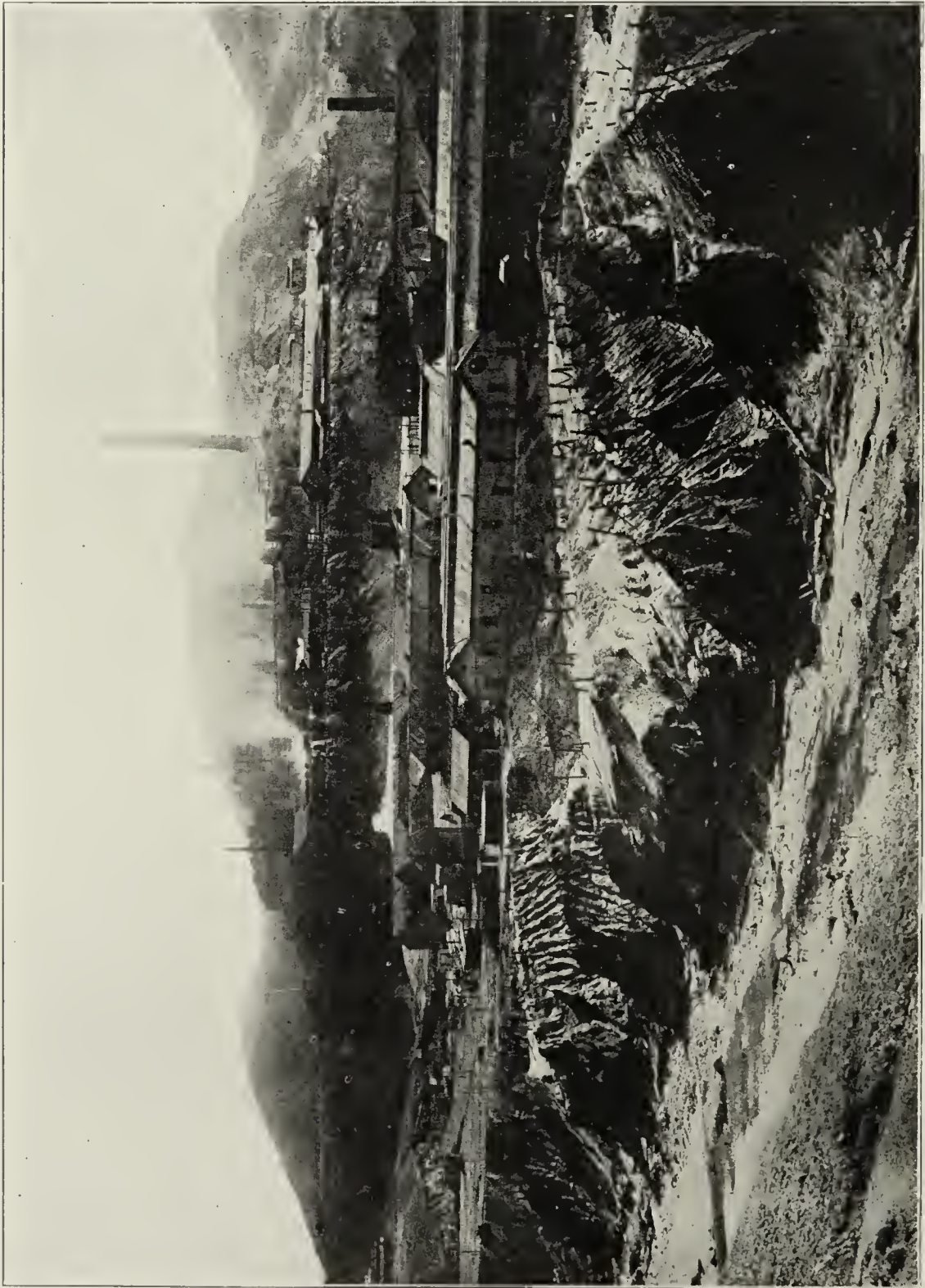
Photo, Australian Government

the history of Canada's mineral industry, the completion in 1885 of the Canadian Pacific Railway opened a second chapter of even greater significance. Vast new territories were rendered accessible in which the prospector showed the way to other enterprise. The most important immediate find was made near Sudbury, Ontario, in 1883, when, in blasting a cutting for the railway, a body of nickel-copper ore was uncovered which has since made the district world-famous. Similar discoveries occurred later on in British Columbia, where during the 'nineties a remarkable succession of ore-bodies, especially auriferous copper and argentiferous lead-zinc deposits, was located in the south-eastern section of the province. The famous Klondyke rush of 1898 must not be omitted in this rapid enumeration. As transportation facilities were extended, other ore deposits in different regions were found, the silver of the Cobalt district, discovered in 1903 during the construction of the Temiskaming and Northern Ontario Railway, and the extraordinarily rich gold finds at Porcupine (1909) and Kirkland Lake (1912) being notable examples. More re-

cently, copper-gold discoveries in the Rouyn section of western Quebec led to the development of numerous mines and the construction of the Horne Copper Corporation's smelter at Noranda, Quebec, where blister copper, containing gold was first poured in December, 1927. Mines have since been opened up in Patricia district of Ontario; while copper, zinc and other metal-bearing deposits of commercial value have been found in Manitoba. Here large concentrating and smelting plants are in course of construction.*

Since 1886, when comprehensive data was first collected for the mining industry as a whole, the advance has been truly remarkable. Valued at \$10,221,255 in 1886, (\$2.23 *per capita*), ten years later production had more than doubled. In another ten years, the aggregate had grown three and one-half times. This total was again more than doubled by 1916. In 1928 Canada's mineral production was computed to be worth \$274,989,487, or an average *per capita* of \$28.47. In still more recent years the total value of the minerals raised has reached over 300 million dollars.

* Dominion Bureau of Statistics, Ottawa.



THE MT. MORGAN MINE, QUEENSLAND
One of Australia's richest gold and copper mines

Photo, Australian Government



A GOLD MINE AT TIMMINS, ONTARIO

Photo, C.P. Rly.

In order to give a clear understanding of the mining industry of the Dominion it is necessary to treat the mineral producing provinces separately.

In Nova Scotia mining ranks next in importance to agriculture. The coal fields are principally in Cumberland and Pictou counties and on the Island of Cape Breton. The yearly return from coal mining now amounts to over £5,500,000. Cape Breton mines show 75 per cent. of the total output and to this industry is due the steady increase in importance of the port of Sydney. The coal deposits are owned by the Provincial Government and are leased on a royalty system to mining companies. These mining royalties provide to-day over one-third of the revenue of the Province.

Gold mined in the Province is of a very high quality, but the value of its annual production is now rather limited. Iron ore, found in the same districts as the coal, has been mined in considerable quantities. Antimony and manganese are found. Gypsum, used as a fertiliser and in manufacturing plaster of Paris, is mined in Cape

Breton Island and near Minas Basin. Sandstone and granite are extensively quarried. Large deposits of rock salt have recently been discovered.

New Brunswick is rich in minerals, but only three branches of the mining industry are as yet on a commercial basis—coal mining, gypsum quarrying, and the production of natural gas. Coal is found mainly in Sunbury and Queen's counties, and at no great depth below the surface. The gas and oil fields are in Westmorland and Albert counties, and are believed to be of large possibilities and great value (value of oil produced in 1929 was £20,000). Iron occurs in the northern parts of the Province, but the industry is not being actively pursued. Gypsum is found in considerable quantities in Victoria and Albert counties, and limestone in many parts. Copper, tungsten, antimony, manganese, bituminous oil shales, brick and fire clay, and gold and silver, are also to be met with, but as yet the mineral wealth of the Province has been but lightly tapped.

The mineral resources of Quebec have not yet begun to be realised, but the little-

explored regions north-west of Lake St. John have given evidence of very rich deposits of many kinds. The territory to the north is also believed to possess rich deposits of different minerals. At present, the most valuable mineral, from a commercial standpoint, found in the Province is asbestos, Thetford Mines being the chief centre. Indeed, Quebec contains the largest and most productive deposits of asbestos in the world. Copper, zinc, lead, gold, iron, mica, molybdenite, and graphite are also mined. Cement alone yields yearly about \$6,000,000 (£1,200,000). The annual production of minerals in Quebec is valued at more than \$37,180,000 (£7,436,000).

The annual value of the mineral production of Ontario reaches over \$90,000,000 (£18,000,000). Almost all the economic minerals, with the exception of coal, are found within the limits of the Province. The silver mines at Cobalt have proved to be one of the richest fields ever discovered, while the gold mines at Kirkland Lake and Porcupine are the second most productive in the world. The nickel mines at Sudbury constitute the most important source of supply of this metal known to-day. Copper is mined in the same district in large quantities. Platinum and lead are produced in commercial quantities. The annual output

of petroleum in South Western Ontario is about 140,000 barrels. Natural gas, used for both light and fuel, is found in wells on the north and east shores of Lake Erie; the yearly output is valued at over \$4,330,000 (£866,000). There are extensive salt deposits in the western part of Old Ontario. Corundum, mica, and feldspar are also found in considerable quantities. The value of the stone and clay products is increasing yearly.

The annual value of the mineral products of Manitoba is placed at over \$4,120,000 (£824,000). The value of the mineral production in the Province has greatly increased in the past few years. There are three important mineral belts—The Pas mineral area, the Rice Lake area, and the Star Lake area. The principal metals are copper and gold. In the Star Lake belt, tungsten and molybdenum properties occur.

In addition, large deposits of gypsum occur at Gypsumville, north-east of Lake Manitoba. The raw material is shipped to Winnipeg, where it is ground and calcined, and manufactured into wall plaster and other gypsum products. Soft lignites occur in the Turtle Mountain district, but are not being developed. Cement, bricks, and limestone are also produced. Building stone of a very superior quality is quarried at Tyndall, east of Winnipeg.



DAWSON CITY, THE CENTRE OF THE KLONDYKE GOLD REGION *Photo, C.P. Rly.*

Great veins of both bituminous and anthracite coal have been discovered in Alberta, and from the number and vast size of these beds, it is believed that over 25,000 square miles are underlaid with this mineral. There can be no shortage of fuel in Alberta for ages to come. In fact Alberta promises to become one of the chief coal-exporting Provinces of the Dominion. About seven million tons of coal are mined annually, and the mines are equipped for an output of fifteen million tons. Natural gas, under heavy pressure, is found at many points throughout the Province, and is extensively used for power, fuel, and light. The most productive source of Canada's petroleum supply is the Turner Valley in Southern Alberta. Petroleum is also found in other parts of the Province in commercial quantities. The sands of the North Saskatchewan River have for years yielded some gold, and the output of clay and stone in the Province is valued at about \$1,000,000 (£200,000) yearly. There are large salt deposits in the northern part of the Province, and immense beds of tar sands are found east of the Athabasca River. The annual mineral production of Alberta is valued at over \$32,367,000 (£6,475,400).

British Columbia is second only to Ontario in the value of the products of her mines. The annual production is valued at over \$63,910,000 (£12,782,000). The Province is rich in gold, silver, copper, lead, coal, and iron deposits. The annual value of the production of gold is over \$4,100,000 (£820,000), the coal taken from the immense veins in different parts of the Province is valued at over \$11,000,000 (£2,200,000), and copper at over \$14,795,000 (£2,959,000). Coal has been mined for many years on Vancouver Island, and in 1898 the extensive coal deposits in the Crow's Nest Pass began to be developed, which, along with the manufacture of coke, have been an important factor in the smelting industry of the Kootenay and Boundary districts. It has been estimated that the undeveloped coal resources of British Columbia amount to about 40,000,000,000 tons. Fully half of the coal mined is sent to the United States, but so great is the supply that the vast beds have as yet scarcely been touched.

Until the discovery of gold in the Yukon, on the Forty Mile and other rivers which

flow into the mighty Yukon, this country was inhabited only by a few Indians and miners, with a scattering of Eskimos. But the year 1896 marked a stampede to the Klondike, famous as the Mecca of gold hunters. In the decade from 1885 to 1895, little more than £200,000 rewarded the searchers for ore, but in the next sixteen years the value of the output amounted to nearly £28,000,000. Coal, copper, silver, and other ores are also mined in considerable quantities.

During the past twelve years the production of gold in the Yukon has materially lessened, and the population of its 207,076 square miles, which in 1901 was 27,219, has steadily diminished until the present residents number only 3,450. The city of Dawson in the same period has lost more than one-third of its people.

The following is the approximate annual value of the minerals produced in the Dominion of Canada :—

	Dollars
Gold - - - -	40,000,000
Silver - - - -	12,300,000
Copper - - - -	43,500,000
Nickel - - - -	27,000,000
Lead - - - -	16,500,000
Zinc - - - -	10,500,000
Cobalt - - - -	2,000,000
Coal - - - -	63,000,000
Natural Gas - - - -	10,000,000
Petroleum - - - -	4,000,000
Asbestos - - - -	13,500,000
Gypsum - - - -	3,400,000
Salt - - - -	1,500,000

INDIA.

The annual value of the mineral production of the Indian Empire has been steadily increasing for some years, and now averages nearly £30,000,000. Thirty years ago it was under £2,000,000. For so large an empire as India, however, the mineral output is still very small, and experts have given it as their opinion that the country is not richly endowed with mineral resources; others there are who affirm that the present small output is due entirely to insufficient prospecting. And it is certain that India in the past must have contained vast stores of mineral wealth. Only gold, coal, manganese, mica, and petroleum are now being worked in anything like large quantities; although the rocks of the peninsula contain extensive deposits of

iron ore, and there are quantities of bauxite, from which aluminium is obtained. Copper is known to exist in many districts as well as tin and chromium.

Sir W. W. Hunter, K.C.S.I., C.I.E., in his standard work on the Indian Empire, says of the mineral resources: "In purity of ore, and in antiquity of working, the iron deposits of India rank among the first in the world. They are to be found in every part of the country, from the northern mountains of Assam and Kamàun to the extreme south of

"Coal has been known to exist in India since 1774 and is said to have been worked as far back as 1775. The first English coal-mine was opened in 1820."

India derives its principal coal supply from the Gondwàna system of rocks, which underlie the range of hills stretching across the north of the peninsula itself. These vast deposits are worked in six districts in Bengal, four in Central India, and one in the Native State of Hyderabad. The most important mines are, however, those in Bengal, and in

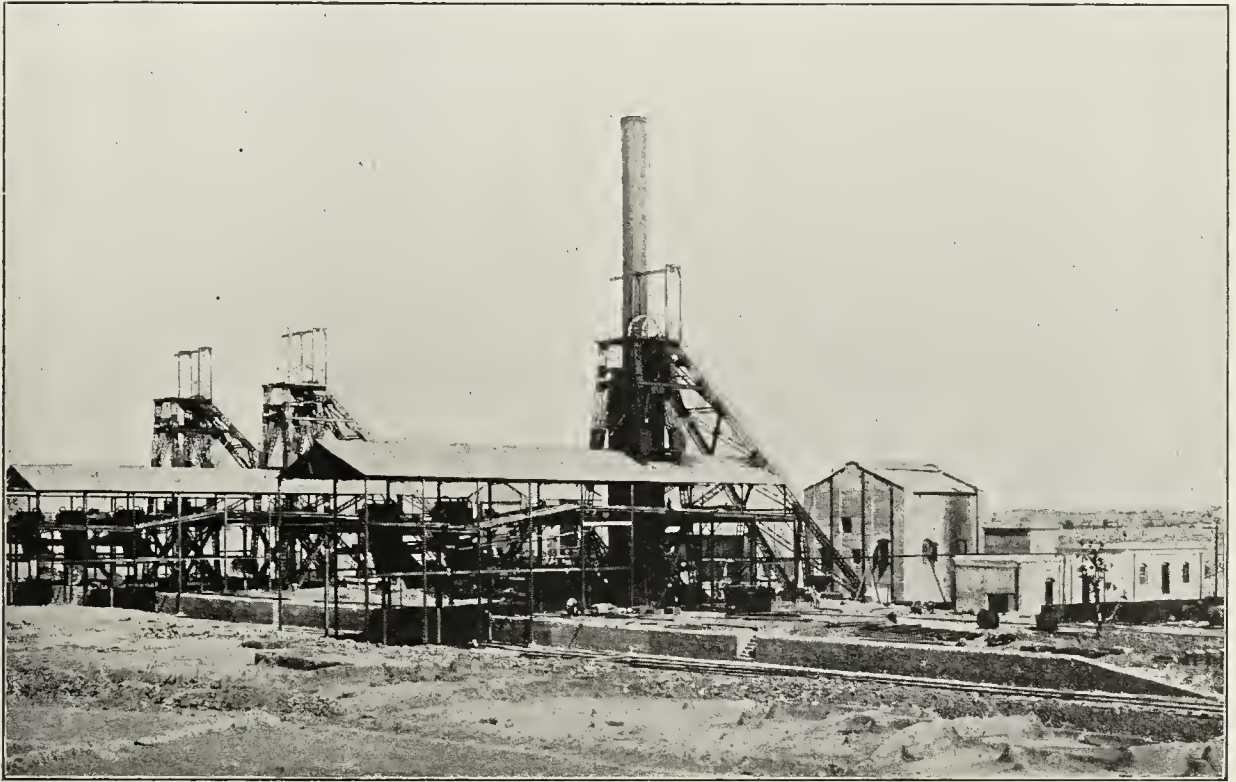


Photo, High Commissioner for Canada

A GIANT SMELTER, AT TRAIL, BRITISH COLUMBIA

Madras. Wherever there are hills iron is found and worked to a greater or lesser extent. The indigenous methods of smelting the ore, handed down unchanged through countless generations, yield a metal of the finest quality in a form well suited to native wants. But they require an extravagant supply of charcoal; and, notwithstanding the cheapness of native labour, the product cannot compete in price with imported iron from England. . . . The initial difficulty in India is to find the three elements of iron-working, namely, the ore, the flux, and the fuel, sufficiently near to each other.

the new Province of Bihar and Orissa, which produce about nine-tenths of the entire output. Coal-mining in India is a comparatively young industry stimulated by the rapid extension of railway communication. Some thirty-five years ago the production of coal did not exceed 2,000,000 tons, while to-day the annual production has risen to over 21,000,000 tons. The establishment of cotton and jute factories has done even more than the railways to stimulate the coal-mining industry, and these factories now consume about 70 per cent. of the entire output.



Photo, "Iron and Coal Trades Review"

GENERAL VIEW OF THE JITPORE COLLIERY, INDIA

There are, in addition to the Gondwàna, two other sources of coal, tertiary and miocene. The former is mined to a small extent in the Punjab, Rajputana, Assam, and Baluchistan; while there is an important colliery of miocene coal in the Assam Valley at its eastern extremity. The most noteworthy feature of this latter mine is the existence of a seam 80 ft. thick. The coal mined in Assam is of high calorific value but contains more moisture and is generally considered inferior to the Gondwàna product.

The miners are mostly drawn from the aboriginal races, principally Santàls and Bauris, who are famous for their endurance. The latter race work with the pick, but the Santàls will only use the crowbar—such is India.

Petroleum occurs in the hills running southwards from each end of the great Himalayan Range. On the west, in the Punjab and Baluchistan, dislocation of the strata has caused the oil to drain off, but on the east, in Assam and Burma, the oil has accumulated in considerable quantities. The

oil-fields of Upper Burma are among the largest and most important in the British Empire. They produce about 300,000,000 gallons per annum. The oil is conveyed to the sea coast at Rangoon by a pipe-line 275 miles in length. The oil-fields of Eastern Assam have an average output of 6,500,000 gallons a year; but, unfortunately, the oil supply of India fails to equal the demand by over 50,000,000 gallons a year, which is imported from the United States. "Although silver has ever been the currency of India in historical times, that metal is nowhere found in the country, nor in the adjoining States of Central Asia. Gold, on the other hand, exists in many parts of India, and probably in large quantities. Many hill streams are washed for gold, alike in the extreme south, on the central plateau, and on the north-east and north-west frontiers. Gold-washing in India is everywhere a miserable business, affording the barest livelihood."*

Ancient gold workings have, however, for many years, directed attention to the quartz

*Sir W. W. Hunter.

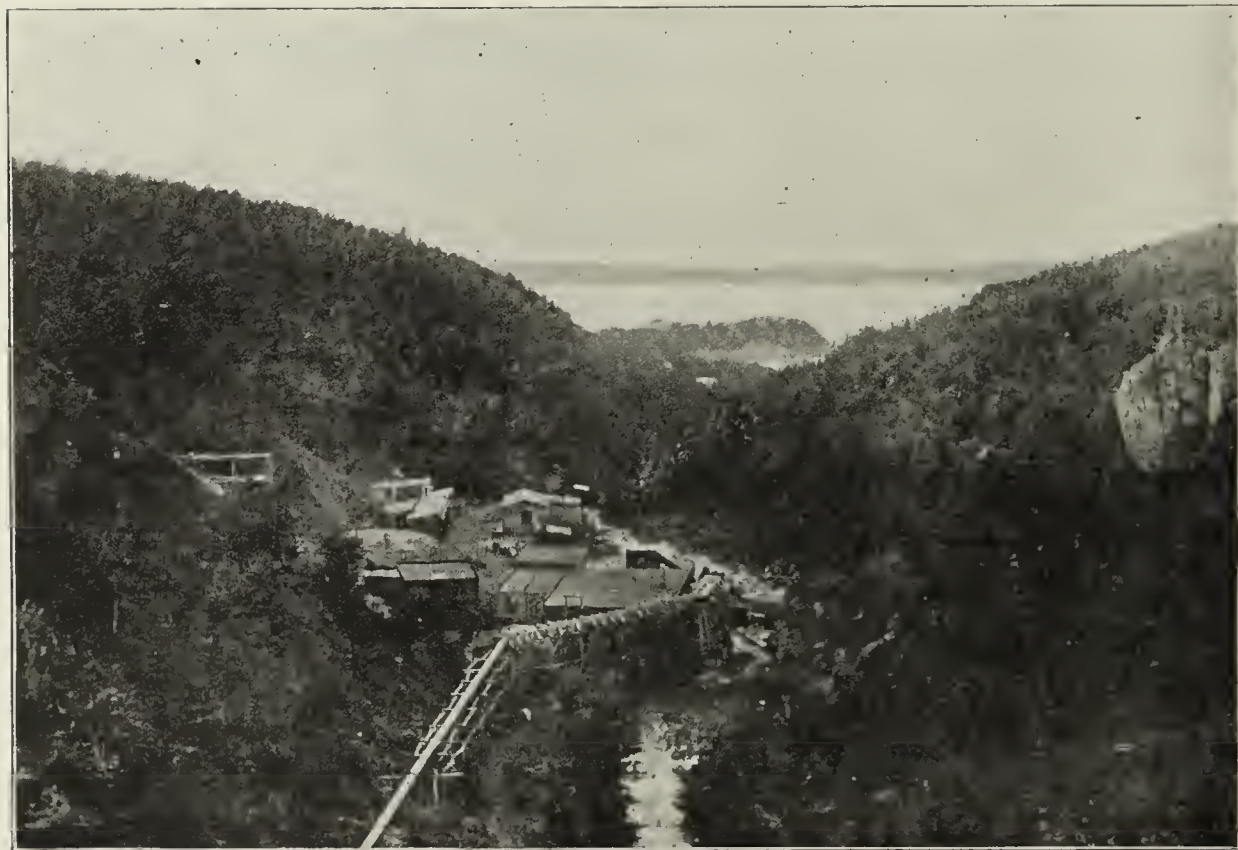
reefs of Southern India, which somewhat resemble the auriferous reefs of Australia. The principal district is Kolâr, in the Native State of Mysore, where gold-mining has now been successfully carried on for many years. Although much of the quartz crushed is of a comparatively low grade—made possible by the aid of water power from the Cauvery River—the output has reached 400,000 to 500,000 ounces per annum. In the north of the Indian Peninsula, in the State of Hyderabad, and in Upper Burma, gold-bearing rocks exist.

Manganese ore has been discovered in many parts of the peninsula, and during recent years this metal has been exported in increasing quantities. The average annual output now amounts to over 1,000,000 tons. Mica is quarried in the hilly region of the north-eastern extremity of the peninsula, as well as at Nellore, in Madras. The mines are principally in native hands, and, although unscientifically worked, yield over £250,000 worth of mica a year.

Curiously although India has been famed for ages for its gems the country itself does not appear to be prolific in precious stones. The name of Golconda has passed into literature; but that city, once the capital of the Deccan, was rather the home of the diamond-cutters than the actual source of supply. It is believed that the far-famed diamonds of Golconda actually came from the sandstone formation, which extends across the eastern borders of the Nizam's Dominions into the Madras districts of Kistna and Godavari. A few worthless stones are still found in this region. Diamond mining is now confined to the Native State of Panna, in Bundelkhand. The yield is, however, very small.

Among the gems found in India the famous rubies of Upper Burma are the most valuable and important. They are produced from this province to the average value of over £100,000 per annum.

Lapis Lazuli is found in large quantities in the Northern Mountains, and is largely



Photo, High Commissioner for Newfoundland

THE SILVER CLIFF MINE, NEWFOUNDLAND

One of the richest silver and lead mines in this Dominion



Photo, High Commissioner for Newfoundland

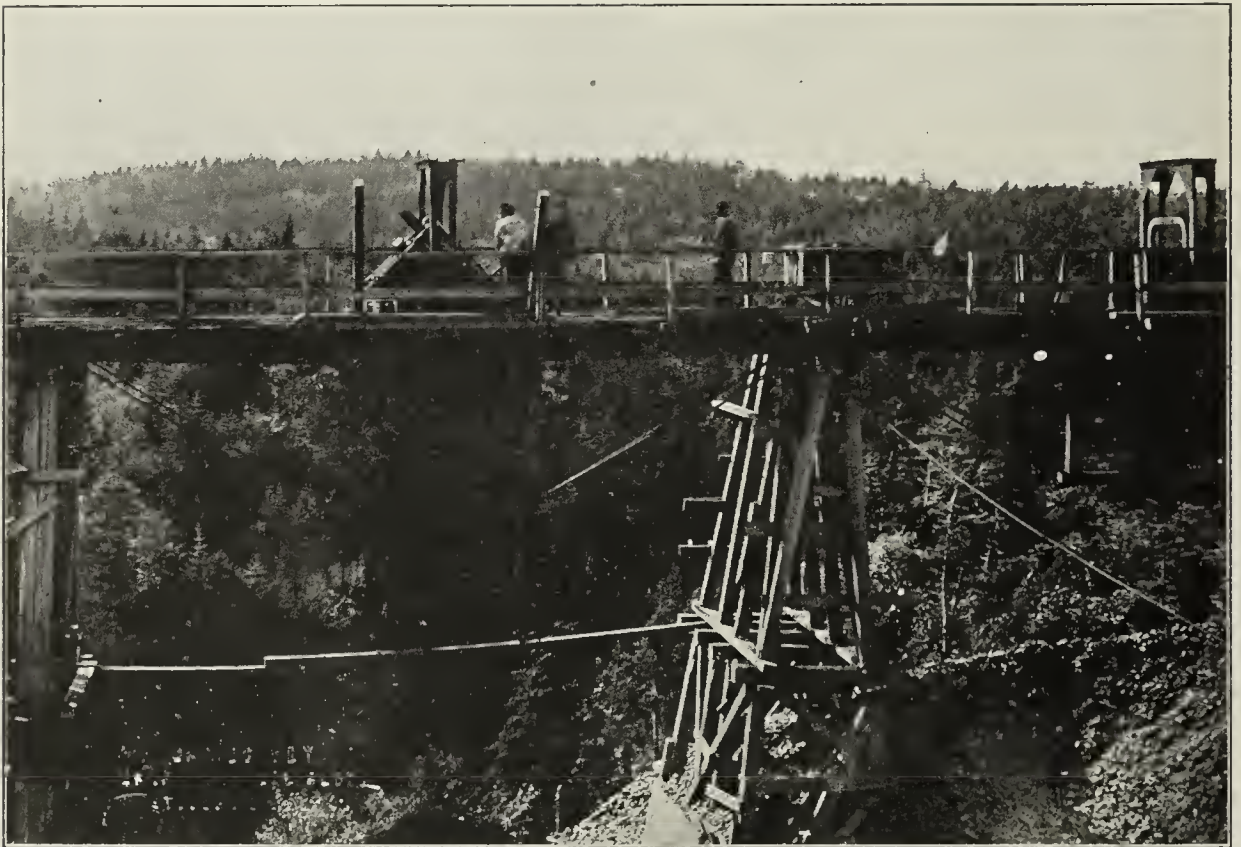
THE FAMOUS BELL ISLAND IRON MINE, NEWFOUNDLAND

used for the embellishment of temples and tombs. Among building stones must be mentioned the pink marble of Rajputana, with which many of the famous architectural beauties of Agra were constructed; the sandstone of the Godavari, and the granite of Southern India. Jade is a beautiful product of Burma (much is, however, brought across the frontier from China); and the output of monazite has recently increased to over 2,000 tons, and that of wolfram to nearly 4,000 tons a year.

1,500,000 tons). Notwithstanding these vast stores India imports much of the salt consumed in the country.

NEWFOUNDLAND.

Mining is still in its infancy; the principal ores at present worked are copper and iron, iron pyrites, galena, hematite, chromite (near Port Bay), and asbestos; a large deposit of manganese has been discovered on the southern shore of Conception Bay, and there are slate quarries at Trinity Bay. The prin-



Photo, High Commissioner for Newfoundland

ENTRANCE TO THE BELL ISLAND IRON MINE

For many years India had a monopoly of saltpetre, so largely used in explosives, but the recent discoveries in industrial chemistry have destroyed this by enabling the manufacture of this essential product. It is, however, still exported to the value of nearly a quarter of a million sterling. Salt, which is very largely used in India, is obtained from the sea water and from the Salt Range, where it occurs in solid cliffs, which for extent and purity are said to be unrivalled (production,

principal copper mines are at Tilt Cove, Betts' Cove, and Little Bay, and at York Harbour, Bay of Islands, all in Nôtre Dame Bay, distant about 200 miles from St. John's. At Port au Port, on the western coast, the chromic ore deposit is on the face of the cliffs, and ten distinct bands of it, averaging about 2 ft. in thickness, are now uncovered, and mining operations have been commenced. Large deposits of what is known commercially as talc, but is really Agramatolite, are

now being worked near Kelligrews in Conception Bay. The mine was opened in 1904, and the first load of ore was shipped on the 13th December, 1904. The deposits of magnetite are also large, and in one locality an English firm has acquired possession.

Gold is reported to have been found over a considerable area at Ming's Bight on the north-east coast. No sufficient work has as yet been performed on any of the claims

been discovered, and in one place a local company is at work upon them. In fact, each year tends to confirm the opinion that Newfoundland is rich in mineral resources, and that capital, and to some extent, skilled labour, are alone required for their development.

Since the beginning of mining operations in 1864 copper ore to the value of about 60,000,000 dollars has been obtained. The



Photo, High Commissioner for Newfoundland

LOADING IRON ORE AT BELL ISLAND

The loading device enables vessels to be loaded at all states of the tide

which have been taken out to enable any decision to be made as to the value of the discovery. Gold has also been found over a large area on the west side of White Bay; and free gold intermixed with iron pyrites elsewhere. Coal has been found of good quality in the districts of St. George's Bay, Grand Lake, and Codroy (near Port aux Basques). The asbestos formations are very extensive at St. George's Lake and elsewhere. Granites and slates of all colours abound, and gypsum is plentiful at Bay St. George and Codroy. Mineral oil springs have also

great iron mine at Bell Island has now been worked for a number of years, and it is estimated that 40,000,000 tons of ore are in sight.

NEW ZEALAND.

The natural mineral resources of New Zealand are considerable, and have exercised in the past a most important influence on the development and progress of the Dominion. Gold to the value of £100,000,000 has already been obtained. Although the gold-mining industry in New Zealand—in common with



Photo, High Commissioner for Newfoundland

A THICK VEIN OF ORE ON THE COAST OF LABRADOR

The vein will be seen running through the rock under the foot of the prospector



PICKING OUT DIAMONDS IN A SOUTH AFRICAN MINE

that of many other countries—has been slowly declining, with the exhaustion of the known rich and easily-worked deposits, it still forms one of the most important articles of export from the Dominion. The average annual production of gold is valued at about £600,000.

New Zealand possesses 172 collieries, some of which are State-owned, and the total amount of coal produced up to the present time is approximately 70,000,000 tons. The Coal Mines Act of 1901 provided for the acquisition and working of State coal-mines in New Zealand, under the direct control of the Minister of Mines. In pursuance of such authority two mines were acquired—the Port Elizabeth Mine, situated on the Grey Coalfield, and distant about five miles from Greymouth, and the Westport-Cardiff Mine (subsequently re-named the Seddonville Mine), situated on the Buller Coalfield, and distant by Government railway about 29 miles from Westport. The average annual

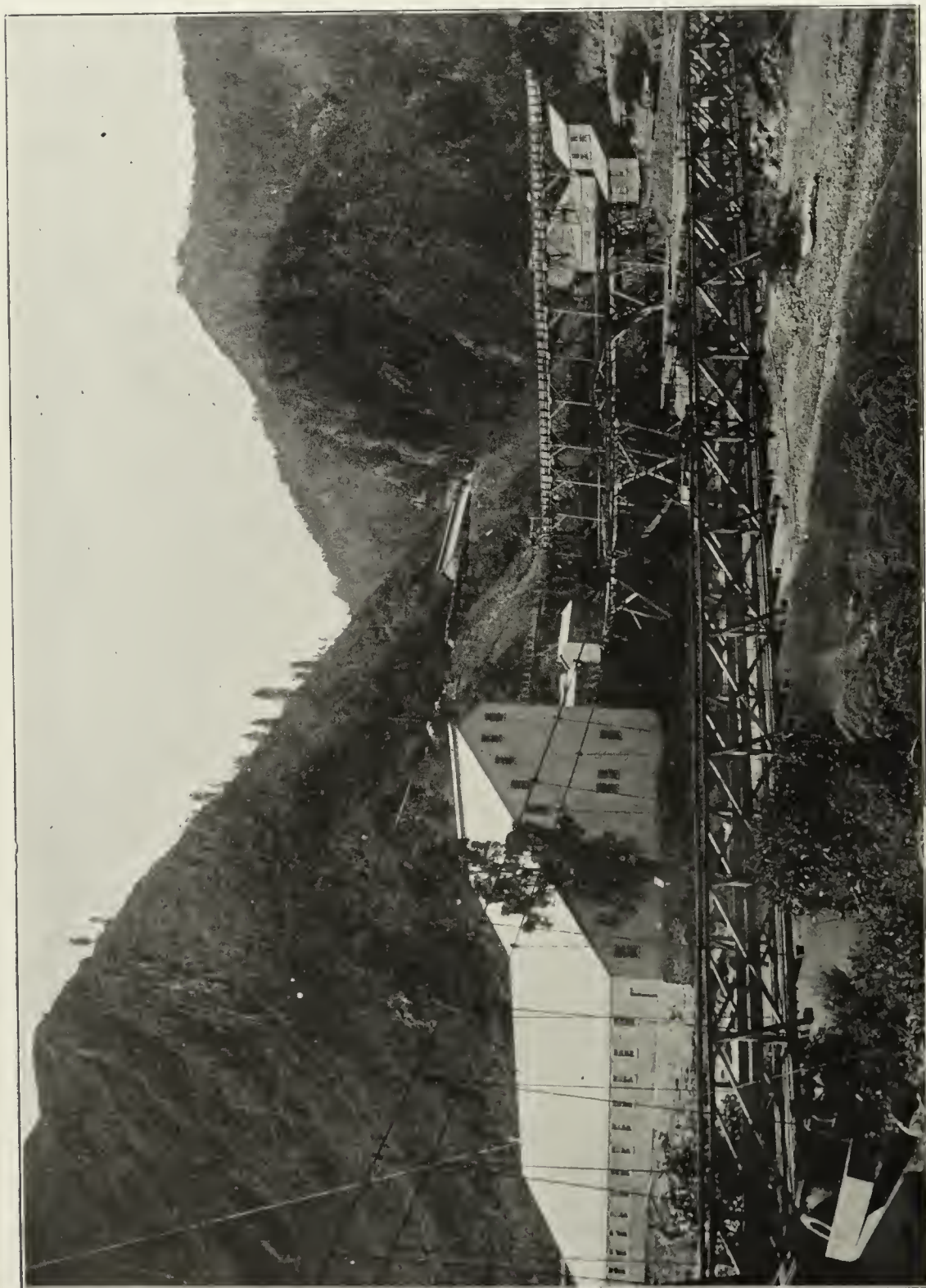
production of coal in New Zealand amounts to about 2,300,000 tons.

Among other minerals discovered in the Dominion are iron; in the form of ironsand at Taranaki and in the form of brown hæmatite at Parapara, near Nelson; schulite, one of the principal ores of tungsten, petroleum, phosphate rock, copper, antimony, manganese, and chrome ore.

State aid is sometimes given to prospectors and miners, in the form of cash grants, loans for the development of mines, subsidised roads on gold fields, loan of prospecting drills, and the provision of hydraulic power. There are mining schools in the Dominion. (See also *New Zealand*).

UNION OF SOUTH AFRICA.

The mineral resources of the Union are very great. The Transvaal is the largest producer of gold in the world and the Cape the largest producer of diamonds. Coal is found in all four Provinces and copper in



GOLD MINING IN NEW ZEALAND
A quartz crushing mill

Photo, High Commissioner for New Zealand

Cape Colony. During the fifteen years 1897 to 1911 the production of gold in the Transvaal almost trebled itself. The total value of the mineral output of United South Africa now amounts to about £61,000,000, of which the value of the gold produced is approximately £43,000,000, and of the diamonds £12,000,000. The number of persons employed in the mining industry is 333,619, of whom only 36,951 are whites.

The principal seat of the Transvaal gold industry is the Witwatersrand area, including all the Main Reef properties in and around Johannesburg and their extensions eastward

Kimberley is situated on these fields, and the value of the diamonds produced by all the South African mines averages just over £12,000,000 a year, including the stones found in South West Africa. About 10,293 natives and 3,143 Europeans are employed in the Cape diamond industry. All the principal mines are held by the De Beers Consolidated Mining Company, who also hold the rights of prospecting and mining for precious stones in Rhodesia. The model village of Kenilworth (a suburb of Kimberley) has been built by the De Beers Company for its white employees.



DIAMONDS FROM KOLMANSKOP, SOUTH-WEST AFRICA

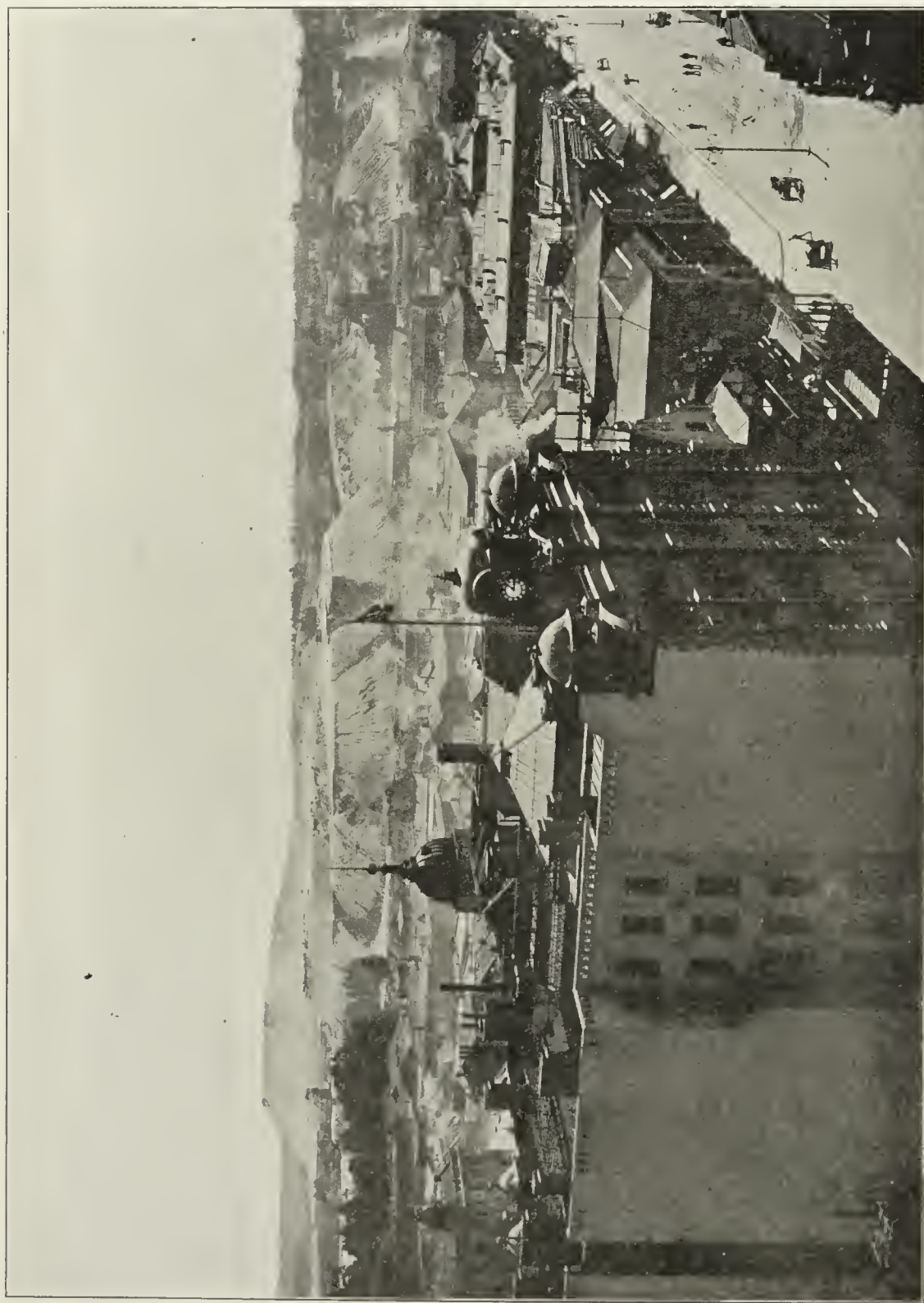
Valued at £600

to Springs and Heidelberg and westward to Randfontein. The other gold-bearing districts of the Transvaal are of minor importance as regards production. They include the districts of Heidelberg, Barberton, Pilgrim's Rest, Pietersburg, and Klerksdorp. The number of persons employed in the gold mining industry is 187,000 coloured and 24,864 whites. No gold is obtained in the Orange Free State, but in the Cape and Natal a small quantity (1,250 ozs.) is annually produced.

Next in order of importance to gold comes the diamond industry of the Cape. Kim-

berley is situated on these fields, and the value of the diamonds produced by all the South African mines averages just over £12,000,000 a year, including the stones found in South West Africa. About 10,293 natives and 3,143 Europeans are employed in the Cape diamond industry. All the principal mines are held by the De Beers Consolidated Mining Company, who also hold the rights of prospecting and mining for precious stones in Rhodesia. The model village of Kenilworth (a suburb of Kimberley) has been built by the De Beers Company for its white employees.

There are also alluvial diamond diggings on the banks of the Vaal River, where about 91,000 carats are annually obtained, the diamonds being much superior in quality to those found at Kimberley. Diamonds are also found in the Kuruman District of Bechuanaland. Most of the diamonds in the Transvaal come from the Premier Mine near Pretoria; but some come from the Bloemhof and Barkly West districts, where, however, the conditions of life are bad. The output of diamonds from the Transvaal has been increasing, and the average yearly value is



THE CENTRE OF THE WITWATERSRAND
A view of the gold mines and dumps from a corner of Johannesburg

Photo, South African Government

about £1,000,000. The number of men employed is 6,000 natives and 2,700 Europeans.

In the Orange Free State Province diamonds of a very good quality are mined at Jagersfontein, and Koffyfontein, in the district of Fauresmith. Other mines are the Roberts Victor and Blaannebosch, 20 miles north-east of Boshof, and the Voerspoed mines in the district of Kroonstad. Diamonds are also found in the Vaal River. The value of the diamond output of this province is approximately £300,000.

Coal mining is one of the most promising industries in Natal. The principal mines are in the Dundee, Klip River, and Newcastle districts, but the Utrecht and Holbake collieries also produce considerable amounts. The number of persons employed is about 17,000, of whom some 800 are whites. Half the total output of coal, which is approximately 3,530,000 tons, is cut by machinery.

In the Orange Free State Province there is good coal on the northern boundary of the



Photo, South African Government

GENERAL VIEW OF THE DIAMOND MINES, KOLMANSKOP

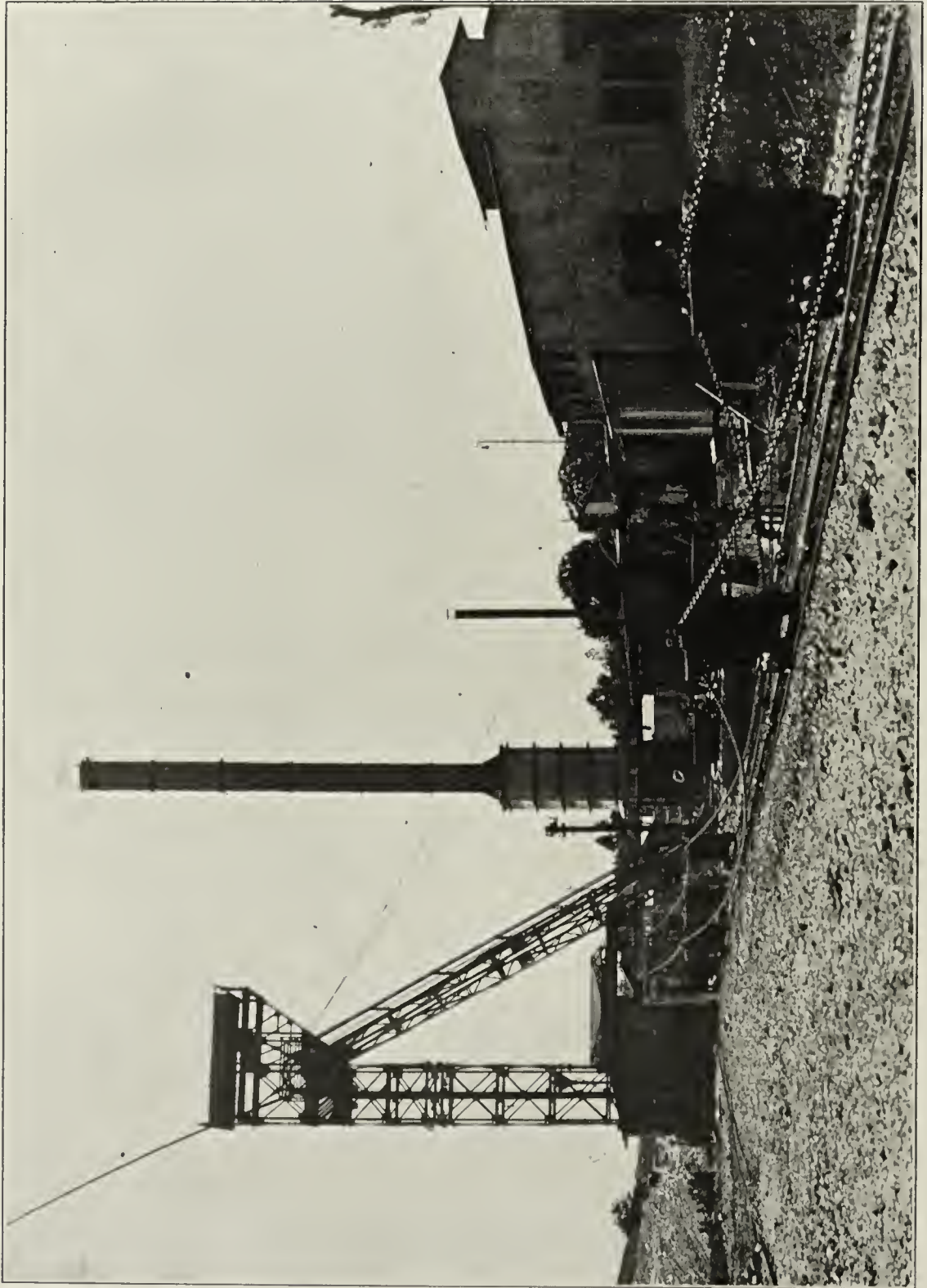
The average number of Europeans employed is 300 and of coloured miners 1,000.

The principal coal-fields of the Transvaal are at Boksburg and Springs-Brakpan, situated within a few miles of Johannesburg; at Vereeniging, 50 miles to the south; and at Middelburg, between Pretoria and Barberton; those at Middelburg producing three-fourths of the whole output. The production of coal in the Transvaal, which is steadily on the increase, now amounts to about 7,000,000 tons (2,000 lb.) valued at £2,300,000 a year.

Heilbron district, and to a less extent in the Kroonstad district. The total output is, however, little more than 900,000 tons per annum, and only about 150 whites and 2,200 coloured men are employed.

The chief coal mines in the Cape Province are in the districts of Molteno, Wodehouse, and Engeobo, about 50 miles south of Aliwal North. The total output is approximately 6,000 tons, and the number of persons employed about 110.

The production of copper in the Cape Province and in South West Africa is con-



A COPPER MINE, TSUNAB, SOUTH-WEST AFRICA

Photo, South African Government



A VANADIUM ORE-MINE, BOBOS, SOUTH-WEST AFRICA
The ore is packed in sacks for transport

siderable. This valuable mineral is found throughout Namaqualand. The principal mining stations are Ookiep, 92 miles from Port Nolloth, with which it is connected by railway, and Tsumeb, in the north of the Mandatory territory. The total production of copper averages 11,000 tons per annum. Over 4,600 people are employed, of whom several hundred are Europeans.

Among other minerals must be mentioned tin, mostly obtained in the Transvaal (£300,000 a year), and such base metals as asbestos, graphite and lead, which have an approximate yearly value of £137,000.

The following table shows the total value of some of the principal products of the South African mines up to 1927 :—

	£
Gold - - -	961,705,493
Diamonds - - -	267,512,865
Coal - - -	76,612,206
Copper - - -	25,484,151
Tin - - -	6,054,977

SOUTHERN RHODESIA.

Mining in Southern Rhodesia, if the ancient and unknown seekers are excepted, began in 1890, but it was not until 1899 that it commenced to assume notable proportions. Up to 1927 the total value of the gold produced has been estimated at £67,000,000. The annual production averages in value about £2,800,000.

Gold is found in every kind of formation occurring in the country. Exploration work has proved that it is not confined to quartz reefs. In the Enterprise district it is found in schists; in the Kimberley district in the granite; in the Abercorn district in sandstone; in other sections in banded ironstone; and in the Eldorado district in conglomerates; while at the Eileen Alannah and Carn and Motor there are rich impregnations in dolomite and sandstone.

Silver, lead, copper and antimony are mined in association with gold. Native copper, however, is known to occur in many



Photo, South African Government

THE WASHING PLANT AT THE BOBOS MINE



A MARBLE QUARRY, KARIBIB, SOUTH-WEST AFRICA

parts of the territory. Some of these deposits are being developed. Chrome iron is found in extensive deposits in the midlands and the greater part of the world's supply comes from this region. The average annual production is 89,000 tons. The ore is shipped direct to Europe and there reduced. Asbestos is found in Victoria and Hartley Districts. Tungsten ores are found near Essexvale, Bulawayo District. The diamonds and other precious stones come from the Somabula and Bembesi areas, between Bulawayo and Gwelo.

There are several coal measures in the territory, but only one is being worked—at Wankie, near Victoria Falls. This seam is from $7\frac{1}{2}$ to $13\frac{1}{2}$ feet thick, and contains, approximately, 600,000,000 tons of coal of a quality equal to the best Natal coal, and only a little inferior to Welsh coal. The Director of the Rhodesian Geological Survey has calculated that the coal resources of Southern Rhodesia amount to 969,411,000 tons, of which 85 per cent. is steam coal, the balance including both semi-anthracite and bituminous coal. The quantity raised aver-

ages 500,000 tons a year. Southern Rhodesia is a young country, but already the total value of the minerals produced has reached £98 millions.

FEDERATED MALAY STATES.

It is not generally known that about half of the world's supply of tin comes from British Malaya. In the early nineties tin-mining was almost entirely in the hands of the Chinese, who then possessed but scanty working capital and little knowledge of scientific mining. Their endeavours were confined to shallow alluvial deposits, and only such of these as could be worked with the moderate capital at their command. The discovery of deeper alluvial deposits has necessitated the introduction of more scientific methods and of up-to-date machinery, under the supervision of skilled Europeans. The discovery of alluvial tin on the hills rendered necessary the introduction of hydraulic plants, and land hitherto of no value has been mined with conspicuous success by this means. Investigation in later years has revealed the more general existence of

deeper alluvial deposits, and without doubt many such, hitherto undiscovered, are awaiting the advent of further British capital for their development. Naturally, with tin ore easy to win from the surface downwards, the prospector and mining engineer have not troubled to locate the lodes from which this alluvial tin must have been eroded. Discoveries in this direction have been made lately, and the Government Geologist has stated that tin lodes exist in extensive quantities.

Alluvial tin ore exists abundantly in the Western States, and sparsely in Pahang. It is found on the tops of mountains, thousands of feet high, as well as in the lowest swamps, and from the roots of the surface grass to depths of from 100 to 200 ft. The tin-mining industry has always attracted Chinese labour in its tens of thousands. Under an enlightened Government, and in the gradual course of civilisation and instruction of the Chinese labourer, systems have undergone a great change. With the discovery of the richness of the Kinta mines—the largest and most prolific tin-field in the world—it became general all over the Peninsula to work the land on the tribute system.

Under this system, the more regular and more valuable deep deposits were proved, and for their exploitation capital and engineering skill were required. A new field was thus opened up for European enterprise. The average annual production of tin and tin ore is 46,000 tons.

Tin, wolfram, gold and coal have been found in the Malay States. Recent prospecting has proved an outcrop of coal in Selangor for a distance of $3\frac{1}{2}$ miles and down to a depth of 150 ft. It is comparatively young coal, and has a proved marketable tonnage of 3,200,000 tons over an area of 156 acres, and the likelihood of a much larger area being proved points to the probability of this coal-field exerting a considerable influence over the destinies of the Federated Malay States, where the industries have been dependent hitherto on expensive imported coal or firewood. The calorific value of the native coal has been placed by a high authority at about three-quarters that of Cardiff steam coal.

Wolfram has occurred with tin in a great many places, but so far in small quantities only, the export in recent years averaging 300 tons per annum. A more extensive lode has, however, been found in the non-feder-

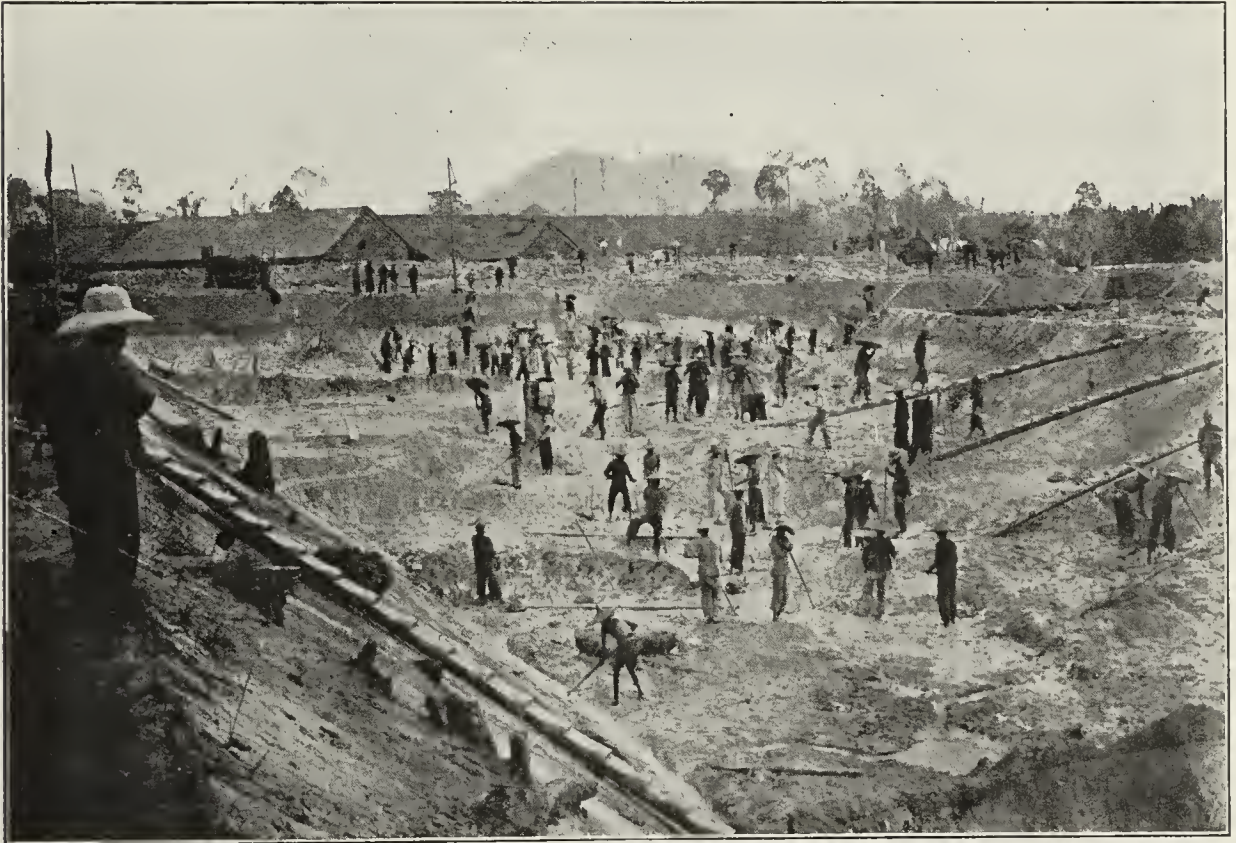


A TIN MINE AT AMPANG, FEDERATED MALAY STATES

ated State of Trengganu, near the Dungun River, which promises to add to the mineral wealth of that State, where gold has been won, and where tin is said to occur in lode formation.

Alluvial gold has been worked for centuries at various points in the Peninsula, especially in Pahang. Quartz mining has attracted European capital, but, so far the output has been very small, amounting to about 15,000 ounces a year.

occurs in quartz, reef, and alluvium. Hitherto the unhealthy climate has retarded the mining industry of West Africa, but the rapid strides made during recent years in combating tropical diseases have extended the field of operations and increased the supply of competent white miners, with the result that the latest returns from the Gold Coast show a steadily increasing output of gold. The average annual production now amounts to about £900,000. Ashanti has



AN OPEN CAST TIN MINE, FEDERATED MALAY STATES

Crown Colonies

Although the mineral resources of the Crown Colonies have been dealt with in the pages devoted to these territories, it is necessary for the sake of completeness to include in this survey of the mining industry of the Empire further details—unsuitable for the general articles—of this industry in those Colonies where it is of special economic importance.

GOLD COAST.

As its name implies the chief mineral product of this Crown Colony is gold, which

long been known to be rich in precious metal, although only a small portion of this huge territory has been properly examined by competent prospectors. The Northern Territory also contains rich mineral deposits which are at present not being worked.

In Gold Coast territory diamonds and considerable deposits of high-grade manganese have recently been discovered. The average annual value of the output of manganese is £700,000. The Government Railway from Sekondi to Coomassie, the administrative headquarters of Ashanti, passes through Tarquah, the centre of the goldfields.

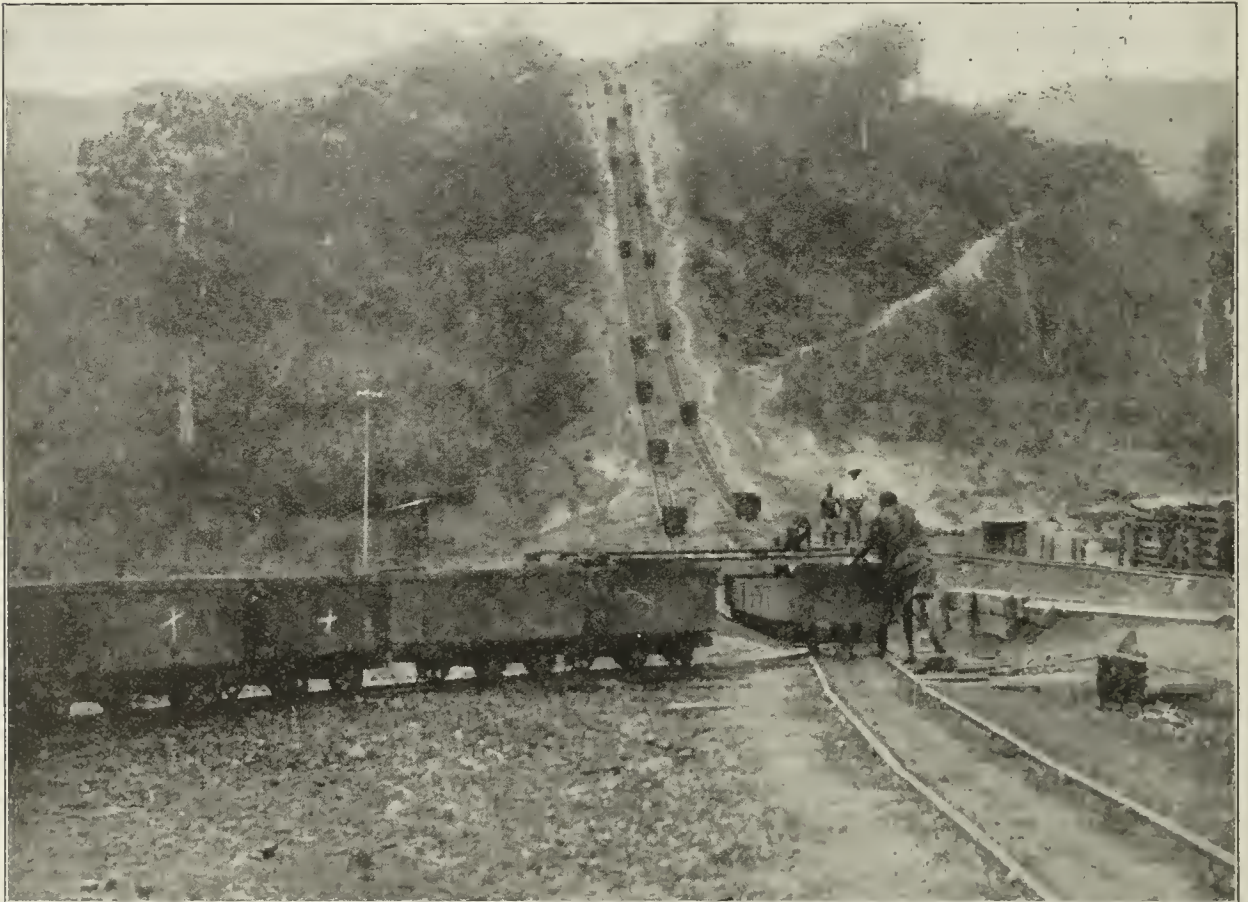
BRITISH GUIANA.

The mining activity of British Guiana is at present confined almost exclusively to gold and diamonds. There are five gold digging districts in the colony, in all of which, except the Berbice and Corentyne, gold digging is being actively pursued. The districts are :—

1. Berbice and Corentyne.

doubt that a large portion of the interior contains untried fields, which, under systematic and modern methods of manipulation, would yield a rich return to the man of energy and endurance. The average annual output of gold is approximately 40,000 oz. The total production of the diggings from 1884 to the present time amounts to about 3,000,000 ounces.

The climate of British Guiana is not un-



THE UDI COLLIERY, SOUTHERN NIGERIA
Empty trucks returning to loading level

Photo, Niger Company

2. Demerara and Essequibo Rivers.
3. Mazaruni and Puruni Rivers.
4. Cuyuni River and Groote Creek, Essequibo River.
5. Barima, Barama and Waini Rivers.

Dredging has been carried on very successfully in the Conawaruk River, and in the Minnehaha Creek. Other rivers and creeks in the Colony offer some scope for this style of work.

The gold industry, however, still awaits proper development, for there can be no

pleasant, for although warm, it is not subject to sudden changes of temperature. It is, however, impossible for Europeans to perform hard manual labour in the sun, and, in consequence, their energies are better employed in superintending and directing the work of the various labourers, such as Portuguese, blacks, and coolies, that they may employ. Prospecting can be done by Europeans, but the actual work of digging in the hot sun soon exhausts them.

Diamonds of fair size and good quality are being found in the districts through which the Mazaruni and Cuyuni Rivers run, and large concessions have been granted to prospectors and miners. The diamonds exported annually average in value about £40,000, and the value of the total production of stones up to the present time is estimated at £600,000.

NIGERIA.

This West African Colony and Protectorate has sprung into fame during quite recent

years on account of its vast population and resources, by no means the least important of which are its tin, coal, iron, lead and silver deposits. The first two of these minerals are at present the most important. In the Kano, Zaria, Bauchi, Nassarawa, and Mabba Provinces rich alluvial deposits as well as lodes have been discovered, and many companies with considerable capital have commenced mining operations. The output is, however, at present small if compared with that of the Federated Malay States, amounting in average annual value to about £337,000. The



TIN MINING DREDGER AT WORK IN NIGERIA

Photo, Niger Company



NATIVES WORKING ON A NIGERIAN TIN FIELD

Photo, Niger Company

next few years should, however, see a very considerable increase in the output of tin from Nigeria, as the companies now working some of the most valuable deposits have erected sluicing plants on an extensive scale; and it is generally considered that before many years the tin-mining industry will have developed into one of the principal sources of wealth for the country. The auriferous area extends over 10,000 square miles of country in the Northern Protectorate, and there are also very rich deposits in Southern Nigeria.

Near Wukari and Orufu, reefs of galena carrying a high percentage of silver have been discovered, as well as pockets of the pure native metal in various parts of the country. Monazite, manganese ore and lignite are also known to exist in large quantities, and gold is discovered in many of the rivers and creeks of Southern Nigeria. The output of all minerals with the exception of tin is, however, at present very small owing

to the undeveloped state of this vast and rich country.

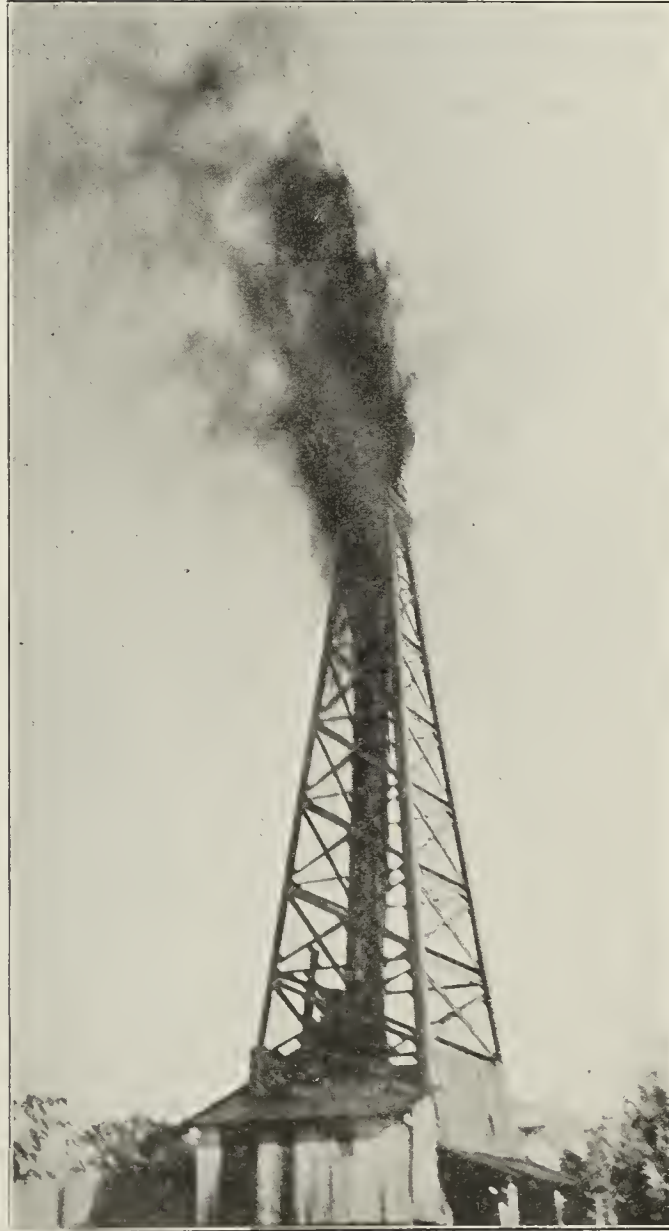
At Udi, in Southern Nigeria, there are coal fields of wide extent which are being actively worked. The coal is of good quality, and the fields are connected with Port Harcourt, on the Estuary of the Bonny River, 150 miles distant, by a railway line.

Although the mining rights in Nigeria have been vested in the Government since the revocation of the Charter of the Royal Niger Co., according to agreement the pioneer corporation still receives half the profits derived from the royalties paid to the Government on minerals obtained from that portion of the country which lies between the mainstream of the River Niger on the west and a line running from Yola to Zinder on the east. This arrangement came into force in January, 1900, and is to last for a period of ninety-nine years.

TRINIDAD.

The mining industry of this West Indian Island is confined almost exclusively to the production of asphalt and petroleum. The

average annual production is approximately £460,000. Petroleum has been discovered in several parts of the island, and numerous companies are exploiting it. Huge tanks



Photo, West India Committee

AN OIL GUSHER, TRINIDAD

former is obtained from the Pitch Lake at Brighton (La Brea), the Government having granted the exclusive right to work this deposit to a company. The value of the

have been erected at Brighton, and borings made in other districts have proved successful. The average annual value of the output is approximately £1,900,000.

British Empire

The average annual value of the production of gold and coal within the Empire is approximately as follows:—

GOLD.		£
United South Africa	-	43,000,000
Australia	-	2,100,000
Canada	-	8,000,000
Rhodesia	-	2,800,000
India	-	1,200,000
Gold Coast	-	900,000
New Zealand	-	600,000
Other Colonies	-	3,000,000

Annual gold production in the Empire	-	£61,600,000
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COAL.		£
British Isles	-	250,000,000
Canada	-	12,600,000
Australia	-	12,000,000
India	-	11,900,000
Union of South Africa	-	3,800,000
New Zealand	-	1,150,000
Other Colonies	-	2,350,000

Average annual value of the coal production of the Empire	-	-	-	£293,800,000
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The principal producers of petroleum—the second most important source of power—are Burma, Iraq (Mesopotamia) and Trinidad (*q.v.*); but over 60 per cent. of the world's supply comes from the United States and 19 per cent. from Mexico.

The following table shows the approximate average value of the yearly output of gold and coal in the British Empire compared with the production of the remainder of the world.

GOLD.		£
The World	-	99,000,000
British Empire	-	61,600,000

COAL.		Tons.
The World	-	879,000,000
British Empire	-	368,000,000



NATIONALITY

THE BRITISH CITIZEN

THERE are few more important and yet complex problems than those of nationality. To give here all the intricate legal details of this problem is unnecessary, but to describe an Empire on an encyclopedic plan, and yet fail to define therein what constitutes its principal asset—the subject—would be an anachronism. It would leave unanswered a question which is continually being asked both in the centres and on the marches of Empire.

THE BRITISH SUBJECT.

A British subject is defined by the Acts of Parliament of 1914–18–22 as any person (1) born within His Majesty's Dominions and allegiance, (2) born in a foreign country of British parents, (3) naturalised by certificate, (4) whose British nationality is acquired by the conquest or annexation of territory, and (5) who is born on a British ship.

The wives of British subjects, without regard to their nationality, birth or origin, acquire the nationality of their husbands. Children whose father acquired the nationality by the conquest or annexation of territory, or who was naturalised by certificate, are deemed to be British subjects, but, when children of naturalised parents are born out of the King's Dominions, it is necessary for the birth to be immediately registered at the nearest British Consulate.

Any person whose nationality depends upon Consular registration ceases to be a British subject unless he affirms his British nationality and abandons any other nationality he may have acquired through birth or residence in a foreign country within one year after attaining the age of 21.

LOSS OF BRITISH NATIONALITY.

A woman who marries an alien loses her British nationality, and does not regain it upon the death of her husband or the dissolution of her marriage unless application is made for a certificate of naturalisation. Other ways whereby British nationality may be lost are (1) by the severance of territory from the Crown, such as occurred to the inhabitants of Hanover and other lost dependencies; (2) by voluntary or formal act becoming the naturalised subject of a foreign State; (3) where a father loses his British nationality during the minority of his children, who become subjects of another State; and (4) where a certificate of naturalisation is revoked by the Secretary of State.

ACQUIRING BRITISH NATIONALITY.

The ways in which people born under an alien flag become British subjects are: (1) by the territory in which they were born, and were residing at the time, becoming part of the British Empire; (2) by the marriage of a foreign woman to a British man; and (3) by naturalisation.

The last of these methods now requires five years' residence within the Empire, of which one year must have been spent in the United Kingdom immediately preceding the application, proof of good conduct, knowledge of the English language, and a declaration that the applicant intends to reside in one or other portion of the Empire.

Anyone who has spent not less than five years in the Government service, and signifies his intention of continuing in the service of the Crown, can obtain naturalisation upon the completion and acceptance of the

general naturalisation certificate obtainable from the Home Office, London. The fees payable for naturalisation are liable to change. Up to 1929 a fee of £1 on submission of the application was required. This sum was not returnable in the event of the application being refused. On a Certificate of Naturalisation being granted a further fee of £9 was payable. A woman who was a British subject previous to marrying a foreigner and whose husband dies (or the marriage is dissolved) is usually not called upon to comply with (1) the requirements as to residence, and (2) the payment of the same amount in fees.

It should be noted that a Certificate of Naturalisation granted in the United Kingdom holds good practically throughout the Empire.

ENTRY OF ALIENS.

The number of aliens landing at the ports of the British Isles every year averages 290,000 ; many of these are, however, merely on pleasure or business visits. This number also includes members of foreign Government services, such as diplomats and consuls. A number almost equal to the arrivals leave the shores of the British Isles each year for oversea destinations.

Before any alien enters the United Kingdom he must obtain leave from the Immigration Authorities. This applies especially to those without sufficient means of support and to those seeking employment or coming to take up employment already offered. In either of the two last cases the Permit of the Minister of Labour is required.

Under the Aliens Order of 1920 provision is made for the registration of all aliens residing in Great Britain.

Similar Acts are in force in all the British Dominions and Colonies, but are designed to keep out only those likely to become a charge on the public.

BRITISH PASSPORTS.

Passports are granted to all British subjects, but applicants who have become naturalised are described as such in these documents. A British passport is issued upon the production of a declaration, on a special form, which contains the regulations governing their issue, scope and use. These signed declarations must be verified or recommended by a declaration made by an official of a banking firm established in the United Kingdom, a barrister, a mayor, magistrate, minister of religion, physician, surgeon, solicitor or notary public. Two copies of a photograph of the applicant, one of which must be duly certified by the recommender, must accompany the signed form of application submitted to the Passport Office, Westminster, or the branch Passport Office, Liverpool, four clear days before the actual passport is required.

Anyone who has become naturalised in one of the self-governing Dominions, India, or the Crown Colonies, must supply a letter of recommendation from (1) the Agent-General of the State, (2) the India Office, or (3) the Colonial Office. (See *Government and Civil Service*.)

A British Subject by Naturalisation must, in addition to the foregoing, also produce the Certificate of Naturalisation.

Passports are available for the countries named thereon, and not for entering or passing through other States, but they can be officially endorsed for additional countries at any time upon presentation at the Passport Office. They are available for five years from the date of issue, and can be renewed for four further periods of one or five years each, after which an entirely new document is necessary. No passport is issued in the United Kingdom on behalf of a person already abroad, who must apply to the nearest British Legation or Consulate, or issuing authority in the Dominions.

Passports, of which great care should be taken, cannot be sent by post out of the United Kingdom.

NEWFOUNDLAND

AND THE

LABRADOR

THE island of Newfoundland, sixteenth in point of size among the islands of the world, lies off the Gulf of St. Lawrence, in British North America, and is the nearest Transatlantic point to Great Britain. It has an area of 42,734 square miles, and a population of 259,317 at the census in 1921, and an estimated population of 279,318 in 1930. Included in the Dominion, which is self-governing, is the coast of Labrador, on the North American mainland. Bleak and desolate in winter, with an approximate area of 110,000 square miles, it has a total population of about 3,700. In summer, however, it is a fishing resort of considerable importance.

FIRST ENGLISH COLONY.

Newfoundland is entitled to the honour of being the first of a long line of illustrious followers. It is the oldest English colony, having been discovered by John Cabot in 1497, the first land sighted being the present Cape Bona Vista. It was not effectually occupied, however, until 1583, a few years previous to the definite settlement of Virginia and some of the West Indian islands.

France, who took possession of maritime Canada in 1534, and founded her first settlement, Quebec, in 1608, was supreme in North America until the early part of the eighteenth century, when her position was successfully challenged by Great Britain. By the Treaty of Utrecht, signed in 1713, complete sovereignty over Newfoundland was

ceded by France, subject to certain vague "Fishery Rights," which have since been the cause of continual friction between the two nations. After Quebec had fallen and French Canada was virtually conquered by the British Forces under General Wolfe, the cession was confirmed by the treaties of 1763 and 1783.

Although the island was occupied in the name of Queen Elizabeth by Sir Humphrey Gilbert, in August, 1583, the first Governor was not appointed until 1728. After 127 years as a Crown Colony it was granted Responsible Government in 1855. Newfoundland was the beginning of what has developed, in just under three and a half centuries, into the largest and most wealthy Empire ever known. Even the Roman Empire at its zenith could only claim the allegiance of some 120,000,000 people, as compared with the 450,000,000 of the British and Indian Empires.

FRENCH CLAIMS.

Although the island was occupied by the British at the close of the sixteenth century, the French were really the first to recognise the value of the fisheries around its shores, where the wealth of this colony still lies, and they secured vaguely defined rights to the use of nearly the whole of the west coast, facing the Gulf of St. Lawrence—known as the "French Shore"—for the process of drying and curing the fish caught by their fleets (mostly hailing from St. Malo) which

congregated on these shores during the fishing season.

During certain months the Newfoundland banks have for many years been the rendezvous of an international fishing fleet, in which British, Canadian, American, and French predominate. The former three have, undoubtedly, stronger claims to benefit by these fisheries than the latter, owing to the proximity of their territory, but custom and indefinite treaty rights gave to the fishermen

to establish cattle-raising farms, for which the land is eminently suitable, or to utilise the enormous supplies of forest-timber.

Even after these restrictions had been abolished in the largest portion of the island, they remained in strict force, owing to the French claims, along the whole stretch of what was termed the "French Shore," which was occupied solely by the temporary huts and other edifices of the fish-curing industry, much to the detriment of the colony itself.



Photo, High Commissioner for Newfoundland

CHURCH HILL, ST. JOHN'S, CAPITAL OF NEWFOUNDLAND
The Anglican Cathedral with the Court House beyond it

of France a claim which they chose to interpret in such a manner as almost to exclude the Newfoundlanders themselves from portions of this island.

Up to 1811 the whole of Newfoundland was exclusively devoted to the fisheries. No houses were allowed to be erected without written permission from the Governor, and building under any circumstances was only permitted in a few places, for fear of interrupting the fishing industry. These prohibitions completely stifled any attempt to develop the resources of the island, or even

The French interpreted the vaguely defined rights which brought about this curious and detrimental state of affairs to mean that their fishermen had exclusive rights to this shore, which it is unlikely could ever have been intended. Great Britain left them undisputed sway in the islands, Miquelon and St. Pierre, off the Newfoundland coast, which afforded ample space for the drying and curing of the fish caught by the French fleet.

It is sufficient to say that, until recently, the French claims were the source of continual discord both in Newfoundland and



THE NEWFOUNDLAND FISHING FLEET ENTERING ST. JOHN'S HARBOUR



THE NEW YORK STEAMER LEAVING ST. JOHN'S, NEWFOUNDLAND

Photos, High Commissioner for Newfoundland



Photo, High Commissioner for Newfoundland

BOWRING PARK, ST. JOHN'S

in Paris and London, but, by the Anglo-French Convention, signed in 1904, France resigned her claim to any exclusive rights she may have had under the Treaty of Utrecht, but still claims the privilege of fishing in Newfoundland waters. There are also certain American claims, but it was agreed at Washington, in 1909, to refer to the Hague all questions relating to the Newfoundland fisheries. It seems probable that such questions will now be dealt with by the Council of the League of Nations.

NEWFOUNDLAND TO-DAY.

Although Newfoundland lies on the north-east side of the Gulf of St. Lawrence, close to the mainland of Canada, being separated from the Province of Quebec only by the narrow strait of Belle Isle, it is politically as well as geographically a separate and self-governing colony; the influence of the *dividing seas* and other considerations have hitherto kept it from joining the Canadian Federation. It has also a certain strategic

importance owing to its position, half across the entrance to the Gulf of St. Lawrence, but this is of fast diminishing consequence owing to the firm friendly relations of the Powers of the North Atlantic.

The coast line of this island, which is the sixteenth largest in the world, is bold, rocky, and much indented, especially in the south-west, where the coast range attains an altitude of nearly 2,000 feet within a few miles of the sea shore. In winter, gales not infrequently sweep these rugged coasts. The climate is variable but, on the whole, very healthy, and the extremes of heat and cold are not so great as in other parts of British North America or in the north-eastern States of the American Union. In winter, the thermometer rarely falls much below zero. In summer the heat ranges from 65 deg. to 80 deg. for four months, the maximum being as high as 83 deg. in the shade. The rainfall is not excessive, nor is the depth of snow in winter so great as in Canada. One drawback is the constant occurrence of fogs in summer



Photo, High Commissioner for Newfoundland
WATER STREET, ST. JOHN'S, CAPITAL OF NEWFOUNDLAND

along the south-eastern and southern seaboards, but these do not penetrate into the interior, and are rarely met with on the northern and western sides of the island. There is a sea-borne moisture in the atmosphere of Newfoundland which gives it a somewhat damp climate, but in the summer and autumn the sun is powerful and the weather mostly bright and fine. Icebergs and broken floes from the Arctic float southwards past the shores of Newfoundland during the summer, and are melted and dispersed off the American coast. These bergs, when enshrouded in the banks of wet fog which so often hang over this portion of the North Atlantic, are dangerous to shipping. On a dark night, or in a thick fog, a chilliness in the air often denotes the presence of bergs long before they can be seen.

The interior of Newfoundland is but little exploited, although the construction of over 900 miles of railways has done much to open

up wide areas of valuable forest, agricultural and mineral land, which was hitherto scarcely known. Vast open barrens, over which roam caribou and other game, hills covered with coarse grass, lakes and rivers bordered by forests of fir, pine, spruce and other trees, and marshes wide and wild, form the principal topographical features, but there are broad stretches of excellent pasture land on which herds of cattle and sheep could be very profitably raised, especially as St. John's is only 1,640 miles from the coast of Ireland.

THE NORWAY OF THE NEW WORLD.

Newfoundland has well been named the "Norway of the New World." In many places it strikingly resembles that country. Its deep fiords, which indent the shores, everywhere guarded by lofty cliffs whose forms are reflected in the clear, bright waters



Photo, High Commissioner for Newfoundland

BOWRING PARK IN MID-WINTER

of the bays, have a remarkable resemblance to those of Norway, and are not less magnificent in their scenery. Many of these great watery ravines, running inland for eighty of ninety miles, exhibit a wonderful variety

The two great bays of Trinity and Placentia, which almost cut the island in two, and the beautiful bays of Notre Dame and Bonavista, have no parallel in respect of size, among the fiords of Norway. Then, in



Photo, High Commissioner for Newfoundland

SALMON FISHING IN NEWFOUNDLAND

of scenery along the great arms which they project in all directions, and in the islands which stud their bosoms. They are on a much grander scale than the famous Norwegian fiords.

their short but beautiful summers, their bright skies, their exhilarating atmosphere, their population of fishermen, so abundant in insular peculiarities and primitive characteristics, hidden away in nooks remote

from all the outer world, quaint in manners, gracious to strangers, the two countries resemble each other strikingly.*

During the months of July, August, September and part of October, the weather is magnificent, the thermometer ranging, occasionally, as high as 83 deg. At this time the country presents a most beautiful appearance, resembling in some parts the Highlands of Scotland. The mountains are clothed to the tops with many kinds of woods,

of the South Coast is of the grandest description; deep gorges in the coast line lead through narrow entrances, with precipitous cliffs on either hand, to magnificent harbours where the navies of Europe might float secure from every gale.

BIG GAME.

To the sportsman the interest of this country will lie in the fact that it is virgin ground, that there are hundreds of square



Photo, High Commissioner for Newfoundland

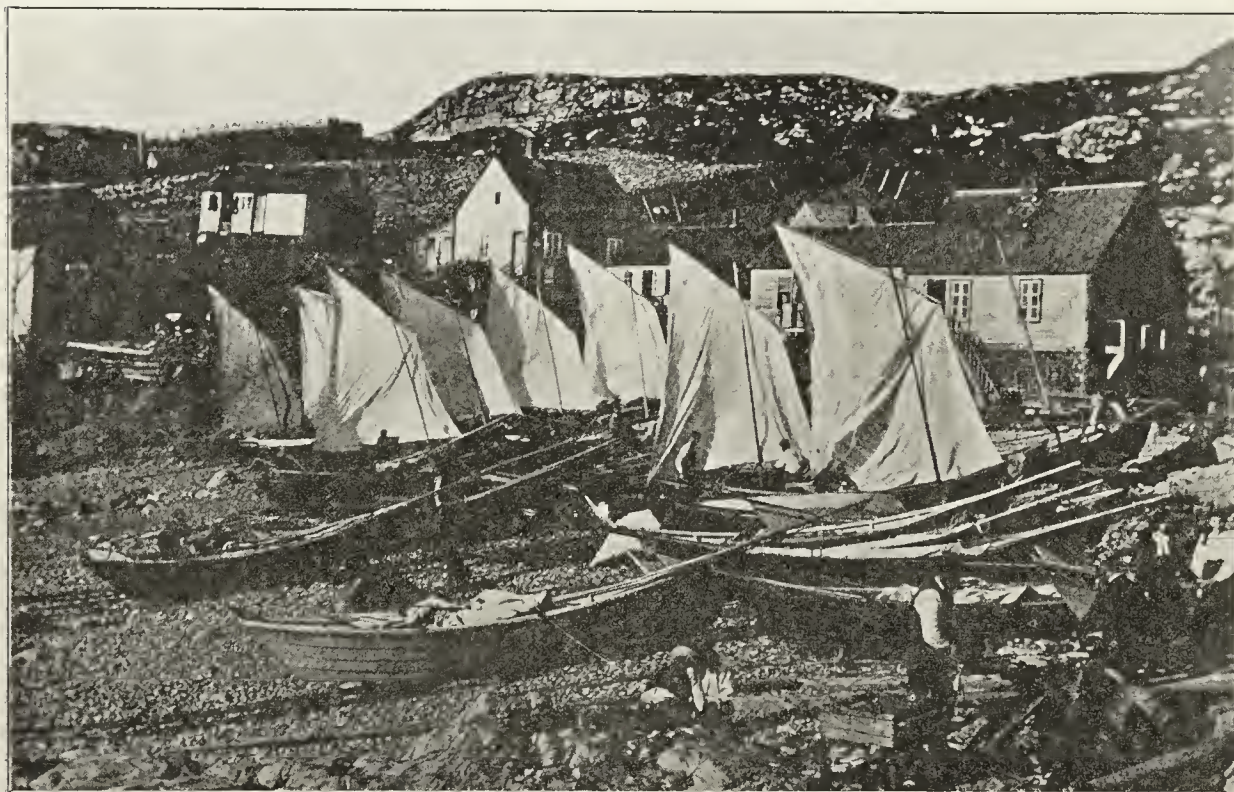
PETTY HARBOUR, NEWFOUNDLAND

One of the many small fishing villages around the rocky coasts of this large island

conspicuous among which are the fir the pine, maple, birch and hazel. The "barrens" are covered with a rich carpet of moss of every shade and colour, and abounding in all sorts of wild berries, pleasing both to the eye and taste. The banks of the rivers also, at this time, are fringed with wild strawberries, raspberries, currants, blueberries, and are adorned with many kinds of fern and wild flowers; while foaming torrents and tumbling cascades complete a picture delightful to the eye of the artist and salmon fisher. The scenery

miles wholly unexplored, where the foot of the white man has never trod. All the wide deer barrens, grouse moors and salmon rivers are open. Countless herds of lordly caribou roam over the interior of the island. Soon after the birth of their young, in the spring, they begin migrating north and west. For countless ages they have been following the same tracks, and in the far interior may be seen stones worn smooth in their paths. Rivers and broad lakes are crossed in this great annual pilgrimage. In the fall, or

* *Newfoundland and Labrador.* The Reid Newfoundland Co.



NEWFOUNDLAND FISHING CRAFT

These boats are used for the inshore fisheries but not for the deep water fisheries on the famous "Banks"



A TYPICAL FISHING VILLAGE *Photos, High Commissioner for Newfoundland*



CARIBOU

Photo, High Commissioner for Newfoundland

autumn, the deer return to their winter quarters. For some unexplained reason, however, many caribou remain both in the far north and the middle of the island. One herd never leaves the Peninsula of Avalon, and another large body remains all the year on the long peninsula, extending from White Bay and Bonne Bay to the Straits of Belle Isle.

Besides caribou, there are, in some localities, numbers of black bear. Wolves are now seldom met with, but the lynx abounds. Beaver, otter and foxes are to be found all over the island. There are immense numbers of the American or varying hare. There is a big Arctic hare indigenous to the colony, of which a large number are killed every year on the south-west coast and in that section of the country near the Gaff Topsails and Quarry.

ST. JOHN'S.

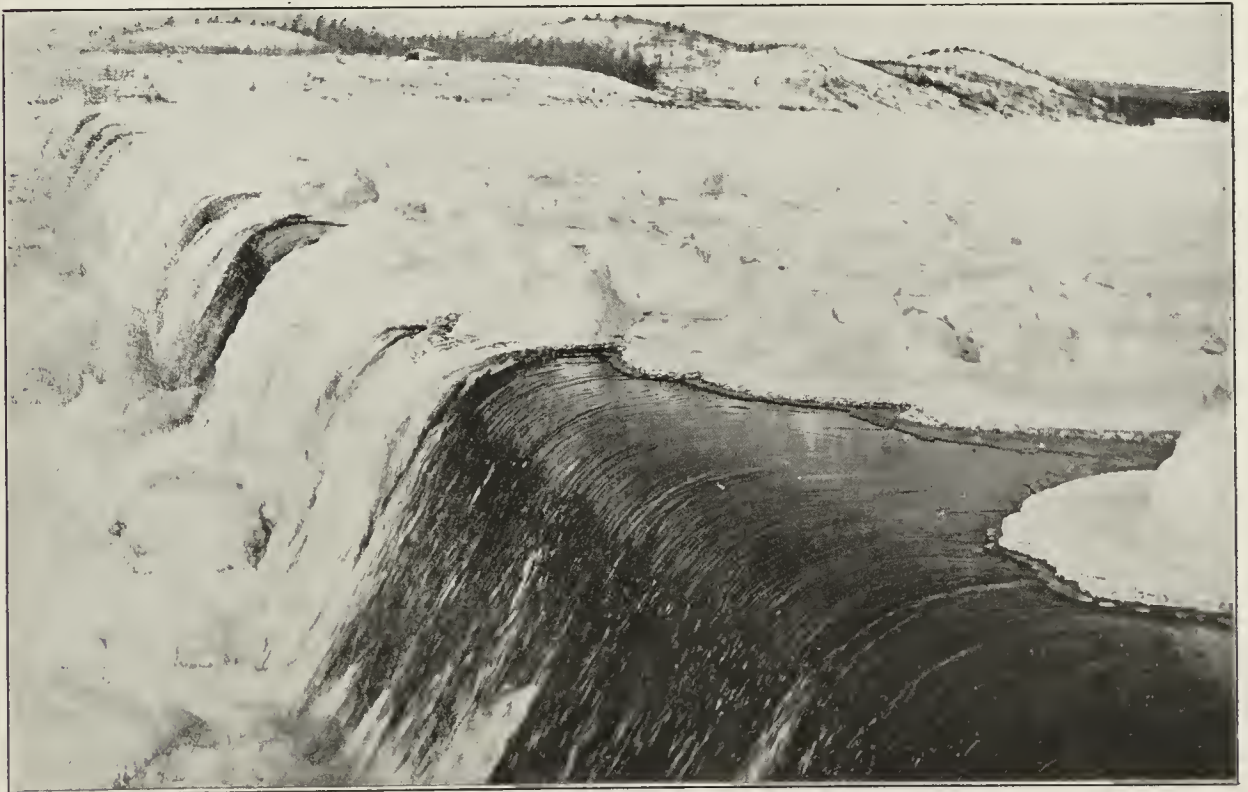
The capital, which has suffered much from extensive fires, stands on a bay of the Avalon Peninsula terminated by Cape Race. During modern times it has been almost entirely rebuilt, and is now a neatly laid-out city on

the hill slope. It has a population of about 41,000, and possesses, besides numerous other public buildings, an English and a Roman Catholic Cathedral, the bulk of the population of the whole Colony being of one or other of these religions, with a decided predominance of Roman Catholics; the Scotch Church is also fairly well represented. A railway line crosses the Avalon Peninsula to Harbour Grace, which is the second town of importance in the island. A railway crosses the southern portion of Newfoundland to Port aux Basques (548 miles), running through the coal region, and past some of the best agricultural land situated in the valleys of the larger rivers. It is six hours by steamer from Port aux Basques to Sydney, Cape Breton, Nova Scotia.

"The entrance to the harbour of St. John's is one of the most striking and picturesque on this side of the Atlantic, and is the admiration of all travellers. In a lofty, iron-bound coast, whose grim rocks frown defiance on the billows of the Atlantic, there suddenly presents itself a narrow opening in the rocky wall, as if by some convulsion of nature the rampart



Photo, High Commissioner for Newfoundland
A SLEIGH RACE ON QUIDIVIDE LAKE



THE BREAK-UP OF THE ICE ON A NEWFOUNDLAND RIVER
Ice Floes going over a dam



Photo, High Commissioner for Newfoundland

SIR WILFRED GRENFELL'S REINDEER

had been rent asunder and the sea had rushed in. Hills from 500 to 600 feet high guard this opening on each side, and, as the vessel glides through, the traveller looks up, not without a feeling of awe, at the great cliffs of dark red sandstone piled in broken masses on a foundation of grey slate rock. On his right hand he sees an almost perpendicular precipice 300 feet in height, above which rises, with almost equal steepness, the crest of Signal Hill, 510 feet above the level of the sea, on which stands the Block House for signalling vessels as they approach the harbour. On the left hand the hill rises still higher, by 100 feet, picturesque, rugged and broken. From its base a rocky promontory juts out, forming the entrance of the Narrows, on the summit of which is Fort Amherst lighthouse, where is heard the hoarse roar of the restless Atlantic, as the waves break on the rocks beneath. It is a scene which, for sublimity, is not surpassed along the entire American coast.

"The city is built on the northern side of the harbour, on a most imposing site. From the water's edge the ground rises with a

slope till the summit is reached, where there is a large level space. Along the face of this slope the main streets run, and the city is rapidly extending itself in all directions beyond. Three principal streets run parallel with the harbour throughout the whole length of the city, and these are intersected with numerous cross streets.

"On the south side of the harbour the hills spring abruptly. From the waters of the harbour the city presents a very picturesque appearance, climbing the slope of the hill.

"St. John's was founded in 1580, and has grown to be a city of about 41,000 inhabitants. It has been frequently devastated by fire. In 1816 three conflagrations in succession swept the greater part of the town. In 1846 another great fire destroyed two-thirds of the city. Once more it sprang up and was rebuilt on a greatly improved plan, but in 1892 the destroyer came in a terrible form, and more than half the city went up in smoke and flames. About 11,000 persons were left homeless, and property to the value of 15,000,000 dollars was destroyed."



A FARM IN NEWFOUNDLAND



LUMBERING IN WINTER
Hauling logs from the sawmill

Photos, High Commissioner for Newfoundland

No traces of the fire are now to be seen. The rebuilt section of the town is vastly improved, and is much handsomer than before the fire. The main business thoroughfare is Water Street, which is lined with fine shops and solid looking buildings.

The only other towns of any importance in Newfoundland are Carbonear, Bona Vista, Twillingate, Fogo, Trinity, Tilt Cove, Catalina, Greenspond, Burin, Placentia, Grand Bank, Channel, Burgeo and Harbour Grace.

sections of the island contain but little good land, except on isolated patches of Silurian strata, which occupy small troughs here and there. The best land is to be found in the central, the northern, and especially the western portions of the island, but no extensive tracts of good land are to be found till the valleys of the larger rivers are reached, such as the Gander, Exploits and Indian Rivers, and the Silurian and carboniferous series on the Humber River, at Port



A SILVER THAW

Photo, High Commissioner for Newfoundland

Government House under the magic of the silver thaw—a thaw rapidly followed by a frost which thickly coats every branch and twig with silver-white

AGRICULTURE.

The long winter somewhat retards agriculture, but root crops are largely grown, and a usually fine autumn enables certain other crops to be successfully cultivated. Although agriculture is slowly extending in this colony, a population trained from early youth to sea fishing has but little taste for agricultural labour, and the cultivation of the soil will probably fall into the hands of immigrants of the present day; it is pretty well limited at the moment to such land adjacent to the seaboard as is suitable for the purpose. The southern and eastern

Bay, Bay St. George, and the Codroy Valley. Much of the soil in these latter districts will compare favourably with that of the Maritime Provinces of British North America. Wheat, rye and buckwheat have been successfully grown in the Humber Valley, and the grain produced has exceeded in size that which was sown. Oats and barley have long been raised, giving good results even in the less-favoured portions of the island. Hay crops are excellent, root crops of various kinds thrive well, especially potatoes; and beets, parsnips, carrots and turnips grow well and produce abundantly. Peas and cabbages.

may also be relied on. Raspberries, gooseberries, black currants and several other varieties of berries may be almost regarded as the wild products of the island. The agriculturist, however, as in many other countries, has to contend with destructive attacks from the fly and from caterpillars.

it is to the fisheries and the forests that this colony looks for its present needs. Although the harvest of the sea is still the principal, it is by no means the only source of wealth in Newfoundland. Happily for this hitherto somewhat backward Dominion, it has now a second staple industry in the making of wood



Photo, High Commissioner for Newfoundland

A TYPICAL COUNTRY SCENE

MINING AND LUMBERING.

Newfoundland is undoubtedly rich in minerals. The principal ones at present worked are copper, iron, asbestos, manganese, gypsum, gold, coal, granites, slate, and mineral oil. About 2,000 persons are engaged in mining, and about 3,000 in farming, but

paper pulp from the enormous supplies of material in the forests which border the rivers and lakes. The Anglo-Newfoundland Development Company's Mills at Grand Falls are of the largest and most up-to-date pattern, and employ a considerable number of hands. The Albert E. Reed Newfoundland

Company have also opened extensive works at Bishop's Falls, on the Exploits River, for the making of paper pulp. Among other large proprietors of forests suitable for the making of paper-pulp may be mentioned the Reid Newfoundland Company and Mr. W. R. Hearst, the great American newspaper proprietor. It is gratifying to note that some of the Empire's leading papers are now printed on Newfoundland paper.

The spruce, which grows so abundantly in Newfoundland, and all over North-Eastern Canada, is the wood that is mostly used for pulp making. It is estimated that

thanks to the foresight of its owners, another forest will be grown ready to share the fate of its predecessor, and to reappear in the form of newspapers.

The railway passes through some of the best timber lands in the colony, and a great deal of timber has already been exported. The timber suitable for manufacture into ordinary lumber is good, but it is limited to the valleys of the larger rivers, such as the Terra Nova, the Gambo, Gander, Exploits, Indian River, and the Humber. The country is nearly denuded of the larger pine, but there is still available a vast amount of



Photo, High Commissioner for Newfoundland

PULP WOOD AT RED INDIAN LAKE

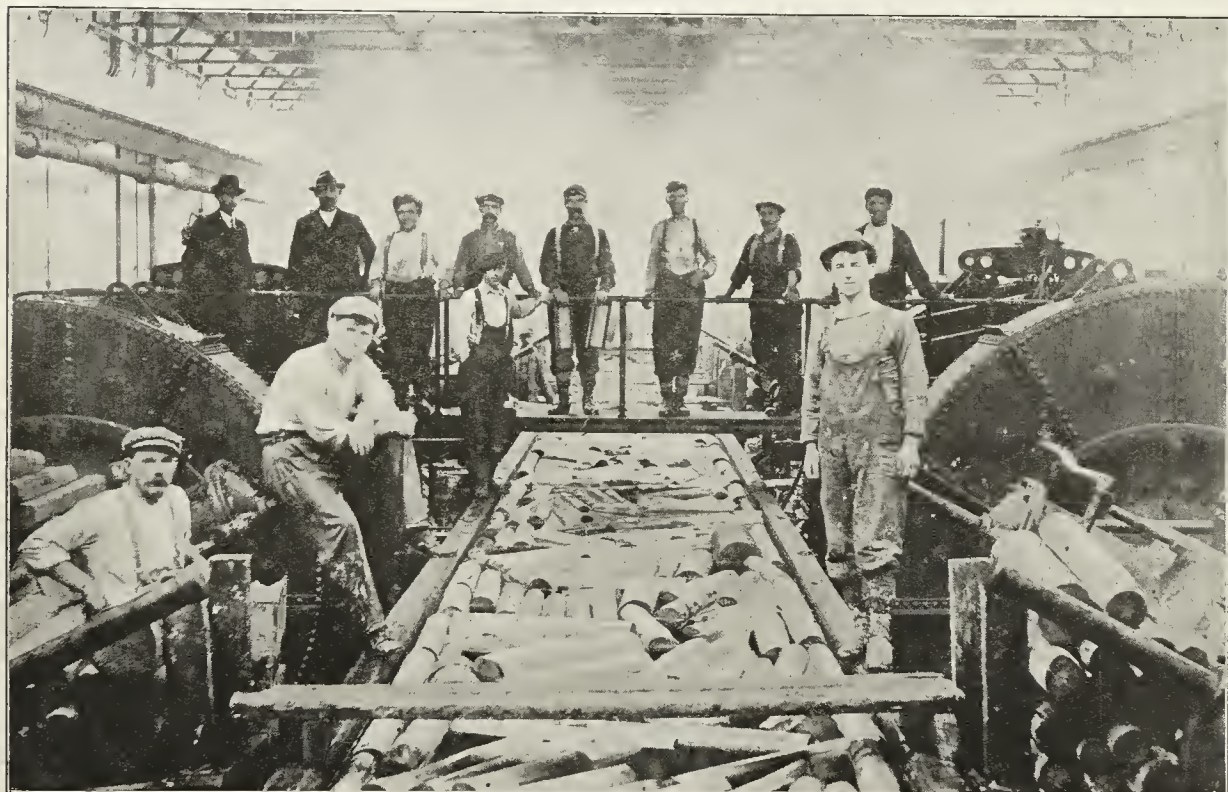
the forest lands of the interior yield about 7,000 feet of wood to one acre. A cord of spruce wood, or 650 feet, yields half a ton of sulphite or chemical pulp, or a ton of groundwood or mechanical pulp. Ordinary newspaper is made as a rule from about 20 per cent. of sulphite pulp and 80 per cent. of mechanical pulp. Consequently an acre of pulp wood is equivalent to the production of $17\frac{1}{4}$ tons of pulp suitable to be converted into paper.

A system of scientific reforestation is pursued on the Anglo-Newfoundland Company's lands. Spruce is a tree that grows rapidly. At from thirty to forty years it is at its prime for pulping purposes, and it is calculated that at Grand Falls, long before the land is denuded of its timber,

other useful wood, such as spruce, birch (white and yellow), tamarack (a species of larch), and poplar.

STOCK RAISING.

It is, however, in the direction of cattle raising and sheep farming that the island seems to afford the fairest promise. There is a vast amount of wild pasture for cattle during the summer months, even on what are considered the barren tracts of the country; the wild grasses on these are of a nutritious character, as is attested by the condition of the cattle turned out on them. Sheep also thrive on these tracts. The coolness and moisture of the climate tend to keep the grasses green and fresh till late in



THE PAPER-MAKING INDUSTRY
Logs on their way to the grinding machines



PULP PRESSES

Photos, High Commissioner for Newfoundland

the autumn, and no fear need exist as to parching droughts.

Thousands of head of cattle could be easily maintained, where none now exist, if the difficulty could be overcome of feeding them during the protracted winter months, so that they should not lose condition. Before this can be successfully accomplished, the hay crop, which might be increased to any amount, must be largely extended, and there are large tracts of land admirably suited for

much longer sea voyage than that from Newfoundland.

FISHERIES.

The harvest of the sea is of vital importance to the prosperity of Newfoundland. Not only are nine-tenths of the entire population of the island dependent upon it, but some 10,000 Newfoundland fishermen depend for a living on the cod and herring fisheries in summer and seal hunting in winter and



Photo, High Commissioner for Newfoundland

GRAND FALLS, NEWFOUNDLAND

raising this crop in the neighbourhood of the larger rivers. The difficulty in question will be to a great extent mitigated if the growing of Alfalfa proves as successful as is expected, especially in the sandy regions to which it seems adapted.

With the proximity of the British market, and the shortness of the sea voyage, cattle taken direct from the feeding grounds in Newfoundland should be, on their arrival at their destination in Great Britain, in far better condition than those which are brought a long distance by rail from the Western States of America before facing a

spring. In addition, each year many thousand fishermen in hundreds of vessels arrive from Europe and America to take part in the fishing on the banks which lie to the east of Cape Race.

Here, amidst the clinging wet fog and drifting ice, the dripping hulls of steamers, with funnels belching forth smoke, slide past the ghost-like forms of sailing craft wallowing in the trough of the Atlantic rollers or raised shaking on their crests. Then a momentary gleam of sunshine illumines the mists as the fog bank rolls away, and a "city of masts and funnels gathered upon a central point"



Photo, High Commissioner for Newfoundland

CARMELITE ROAD, GRAND FALLS

The centre of the paper-pulp industry

appears like a phantom fleet, dripping and shaggy with dew, the oilskins and sou'-westers of the fishermen gleam with the wet, the sails hang heavy, bead-like drops fall in showers from the rigging with each long-drawn roll of the vessels, and little cascades flow through the scuppers. But, like the mists of a spring morning in England, the fog banks clear away, and the sun shines bright over the waste of waters. Some of the vessels have "filled-up," and are making for the curing, drying and canning grounds on shore, others are standing out to sea, and in the distance the great hull of a liner is being driven through the waves at top speed. Then another fog bank rolls up, a damp chill comes over all, and again the Newfoundland fishing fleet is swallowed up in the mist.

Such is a glimpse of the international fleet at work on the banks. Fishing, especially cod-fishing, is at present the chief industry in the colony, nine-tenths of the population being engaged in catching and curing fish. In addition to the regular summer cod

fishery (much of which goes to South America, Spain and Portugal), there is a large herring fishery carried on throughout the year, a considerable business being done with the United States in frozen herring during the winter months. Salmon fishing is carried on to a considerable extent during summer, and of late years the lobster-canning industry has become important, and whale fishing has increased. Seal catching in the months of March and April is still followed up vigorously, and employs a large number of vessels.

The fish comprised within the scope of the catches negotiated by the sturdy Newfoundland fishermen embrace the most important deep sea kinds, the principal being cod, herring, mackerel and lobster. It is computed that 185,000 tons of codfish is caught annually in the Newfoundland waters, which represent the almost inconceivable quantity of 175 millions of fish. The total value of this enormous catch amounts to something over £2,800,000. Fortunately the cod is one of the most prolific of creatures,

and a single female deposits 8,000,000 eggs annually. Naturally if only a moderate proportion of these attained the dignity of adult fish, the sea would soon be choked with them. The curing and packing industry, which is done on shore, gives employment to large numbers who are not fishermen. There are, besides, the allied industries of fish-glue and cod, whale and seal oil making.

Although the fisheries were started about 500 years ago, shortly after Cabot's landing, and have been in full swing ever since, the enormous drain on the ocean's resources appears to have had no effect in reducing the supply.

At the commencement the work was mainly conducted by fishermen from Norway and Brittany, and also from the Basque Provinces, and evidence of their settlement on the island is everywhere apparent in the names of the towns and bays. The English soon recognised the value of the fisheries, and established fishing stations on the eastern coast, to which the fishermen went from England in the spring, and from which

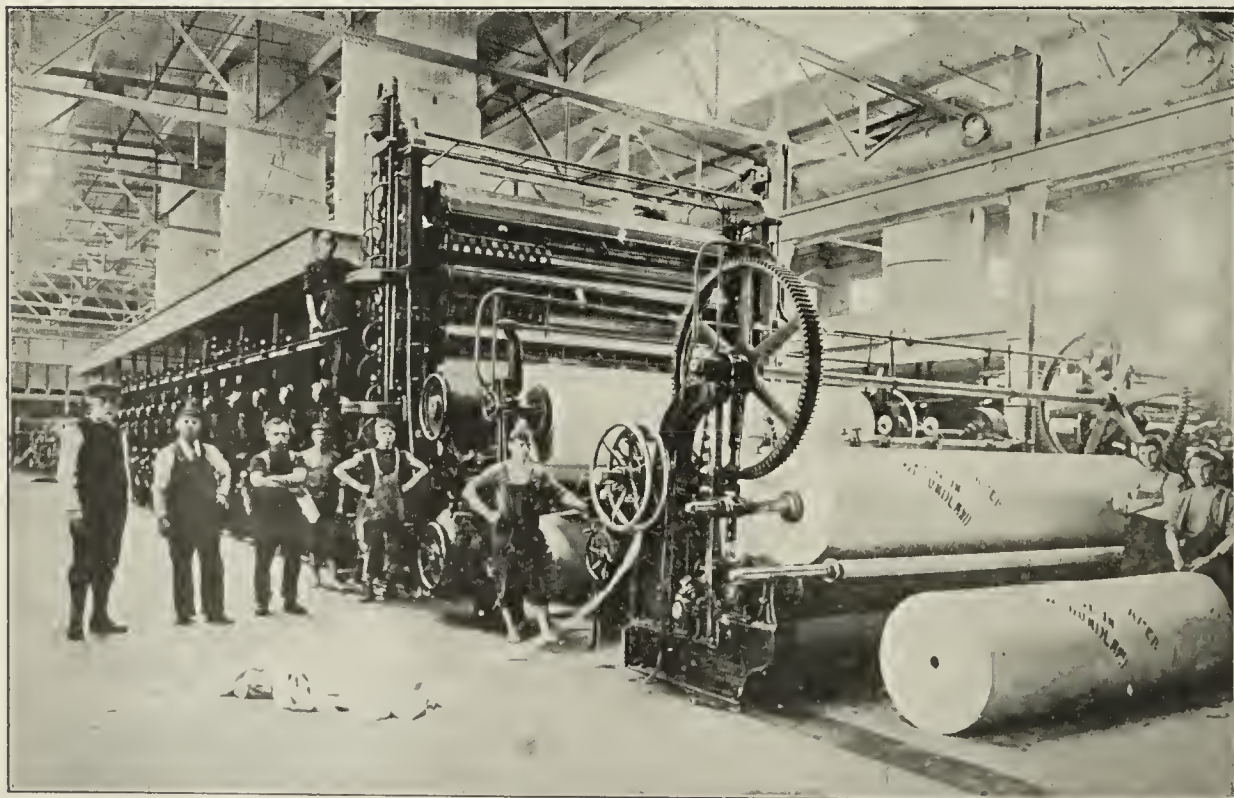
they returned with their catch at the end of the season.

For the following account of the various forms of fishing, as practised on and around the shores of Newfoundland and Labrador, the author is indebted to that wonderfully interesting book, "Through Newfoundland," by R. E. Holloway, B.A., B.Sc.*

THE TRAGEDY OF THE CAPLIN.

The advent of the cod is preceded by the appearance of herring and caplin. In the early summer, the caplin appear in myriads along the shores. Pursued by the cod, horse-mackerel, whale and other marine enemies, and accompanied by dense clouds of birds, who swoop upon them from the sky, the caplin appear to be driven by fright upon the shore, where they fall a prey to their last enemy, man. Each wave throws its burden of fish on the shore and leaves a shimmering, leaping mass as it recedes, and the fishermen, with their nets, stand knee-deep in the water and collect the spoil in heaps, which are carted away

* Published by Ducks & Co., St. John's, Newfoundland.



PAPER-MAKING MACHINES

Photo. High Commissioner for Newfoundland



for drying as food, or for use as manure. It is a curious fact that, later in the year, the sea itself all round the island is covered with dead and dying caplin, for whose death no reason can be given.

THE VALUE OF THE SQUID.

The importance of this curious fish may be gathered from the fact that during the summer, "jigging" for squid forms an important source of income to the fisherman, who sells his catch to the fishing schooners.

This question of bait is one of supreme importance. In the early spring the herring forms the principal bait, followed by the caplin in June, and supplemented later by the squid. The French fisheries—formerly constituting the most burning question between the Newfoundland and the French Government—depend almost entirely on the supply of this bait. The "Bait Protection Service of Newfoundland," which was introduced to prevent the illicit but remunerative sale of bait to French vessels,



THE GRAND FALLS

Photo, High Commissioner for Newfoundland

These falls produce the hydraulic and electric power for the pulp mills

which depend entirely for their success on the supply of bait, *and bait of the right kind*. Probably the best is the squid, and one method of catching them—that of "jigging"—is unique and interesting. They are caught on unbaited hooks which are fixed to lines hung over the sides of the boat. The lines are kept constantly in motion, and the squid are either so plentiful or so curious as to examine the dancing hook too closely, so that large numbers are secured, and these find a ready sale to the schooners which call at the bays before proceeding to their fishing grounds.

is so well organised that practically no bait is now smuggled across to St. Pierre; and the consequent failure of the French Bank fishery no doubt had much to do with the pacific settlement of the French Shore question.

THE BANKS.

The prevalence of fog off the shores of Newfoundland has given rise to the fiction that this country is a land of almost perpetual mist. As a matter of fact, these fogs are by no means frequent, especially close in-shore, and are only experienced when the wind



LANCING A WHALE



A SULPHUR-BOTTOM WHALE

Photos, High Commissioner for Newfoundland



Photo, High Commissioner for Newfoundland

A WHALER WITH HIS HARPOON

blows from the east, from the Banks, which are situated almost 200 miles seawards from Cape Race, and are produced by the accumulation of sediment deposited where the Arctic current and Gulf Stream meet. While the deposition of this sediment is said to yield the food which attracts the cod, on which the Bank fisheries depend, the mixing of the warm, moist air above the Gulf Stream with the cold air accompanying the Arctic current, results in the formation of a super-saturated atmosphere, from which the moisture settles as the mist or fog, whose almost constant presence *on the Banks* has caused them to be dreaded, and avoided when possible by ocean shipping.

ICEBERGS.

Another effect of the Arctic current is the immense number of icebergs which, with the

floe ice, are brought down from beyond the Arctic circle. Although the floe ice is merely the frozen sea water, and is therefore salt, though much less so than the sea itself, because the water in crystallising as ice becomes to a great extent separated from the salt, the icebergs themselves are as pure as the best ice that can be made by artificial means, and are regularly relied upon for supplying ships with fresh water supplies.

These icebergs, which all the year round, but particularly in the summer and autumn, can be seen from most parts of the coast, and which are frequently carried by wind and current into the bays and anchorages, are really fragments of the Arctic glaciers, which, produced on the Arctic mainland by accumulations of compressed snow whose own weight and movement convert it into ice, are constantly descending to the sea-



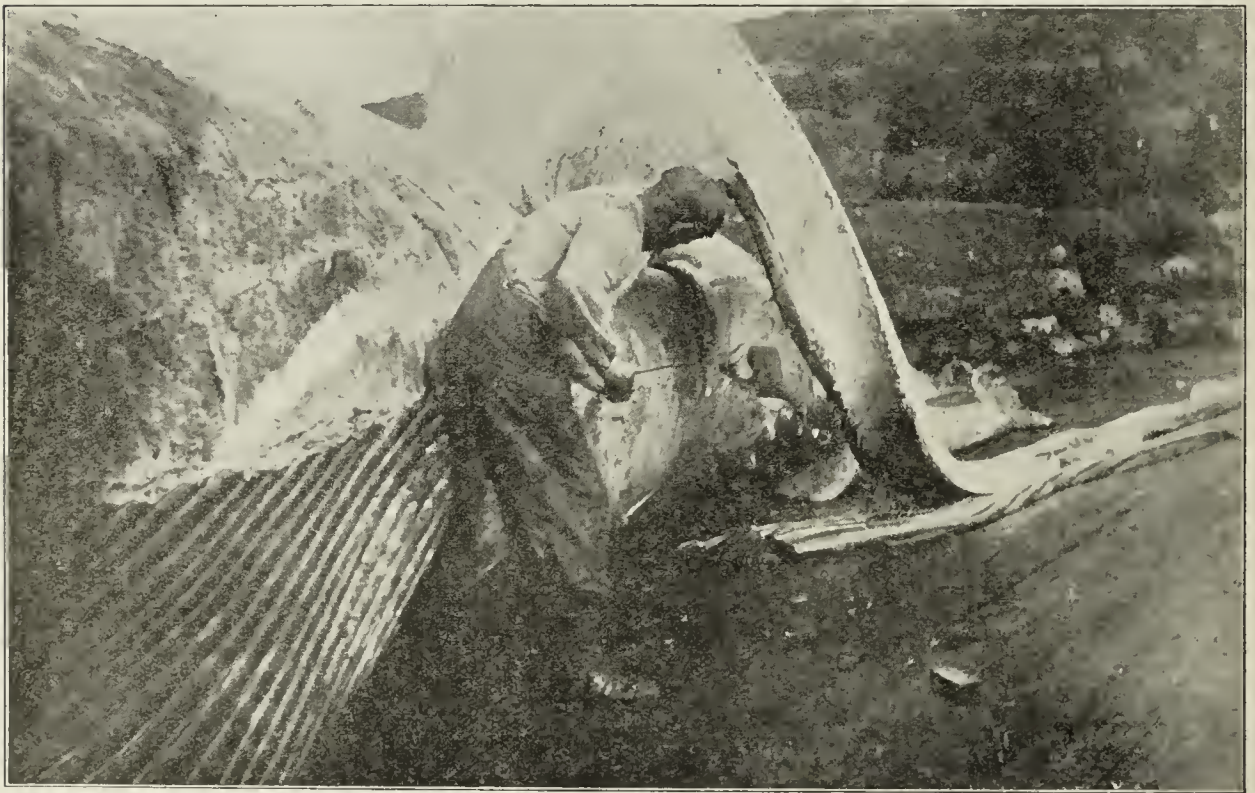
SEALING STEAMERS IN THE ICE



KILLING AN OLD SEAL *Photos, High Commissioner for Newfoundland*

board. As they reach the sea and extend from land into water, the weight of the overlapping portion results in the breaking off of fragments, which, although only fragments as regards the relative mass of the glaciers, form the gigantic icebergs, sometimes miles in length, which pass in a grand procession south, and often enter and block up the mouths of harbours in Newfoundland, until a lucky change of wind carries them out into the open sea.

layers of air of different density, the lowest layers are the hottest and least dense, while on the colder ocean, the upper layers are hottest and highest. These layers of air, by their different refractive powers, alter the position of the rays of light so that an object lying within or beyond them appears raised, enlarged and usually slightly dimmed. The effect of "looming" on cloud banks often gives the impression of distant land, a ship in full sail or a rocky coast.



CUTTING THE BLUBBER FROM THE CARCASE OF A WHALE *Photo, High Commissioner for Newfoundland*

LOOMING.

In midwinter the Aurora Borealis can be seen to peculiar advantage, and on calm days in mid-summer that variety of mirage known locally as "looming" may also be observed. This interesting spectacle is due to the existence of layers of air of different density and humidity lying one over the other, and produced partly by the direct heat of the sun and partly by its radiation from the surface of the water. It is, in fact, produced by exactly the same causes as the mirage of the desert, with this difference, that whereas the latter is also caused by

WHALING AND SEALING.

The whales caught in Newfoundland waters belong to the sulphur-bottom, hump-back, and fin-back varieties, the latter sometimes exceeding 70 feet in length. The whales are shot by a harpoon discharged from a gun. The harpoon is secured to a cable, and the dying whale is gradually hauled to the ship's side by a steam winch. The whale fat is worked up for oil, while the body is used as manure, and whalebone is exported for a variety of industrial uses.

With regard to the seal fishing industry, it is advisable to point out that the



A SEAL PELT
Showing layer of fat under the skin

Photo, High Commissioner for Newfoundland

Newfoundland sealskin is not the true fur-bearing variety, and the animal's value depends entirely on the fat and the use of the skin as leather. The seals give birth to their young on the floe ice coming down from the Arctic regions, and, provided the ships can reach the ice at the right time, there is little doubt that a good haul will be obtained.

There are, however, many elements which render the industry a hazardous and speculative one. The ship may miss the main body of the ice upon which the seals assemble, or she may become jammed in a floe, from which, if she be not crushed, nothing but a favourable wind to separate the ice can release her.

The catch varies greatly. While vessels have returned with from 20,000 to 40,000 seals, valued at anything up to 100,000 dollars, it is by no means uncommon for a ship to return with an almost empty hold.

The seals are usually born on the ice during the middle of February, and at that time weigh about five pounds. By the time they are four weeks old, the skin and the

layer of fat between the skin and the body weigh from 40 to 50 pounds, and are at their highest perfection. The seal does not take to the water until it is about six weeks old, and they are then almost beyond the reach of the sealer. The bulk of those which are destroyed are only a few weeks old.

The method of killing is extremely simple. Except when guns are used, the sealer leaves the ship armed only with a knife and a "gaff," or long pole shod with iron and fitted at the other end with a hook. With the gaff he strikes the seal on the nose, and, having thus presumably killed it, cuts the skin from nose to tail, and tips the body out from the pelt. The body, which falls out almost free from fat, is left upon the ice, but the skins, with their inner coatings of fat (or pelts), are strung together and hauled to a convenient spot ready for their removal in bulk to the vessel, when all the seals on the floe have been slain. The heart of the seal is usually cut out and eaten as a delicacy by the sealers themselves. The skins are salted for export, and the fat is rendered down by the aid of steam for the production of seal oil.

LABRADOR.

Forming a dependency of Newfoundland is the long stretch of coast land comprising the north-eastern extremity of the American Continent. It extends from the Strait of Belle Isle in the south, to the Hudson Strait, in the north, a total distance of over 850 miles. The boundaries of Labrador and the Canadian Province of Quebec were defined by the decision of the judicial Committee of the Privy Council in 1927. Although no actual surveys have yet been made, the whole of the Hamilton River basin and the eastern side of the George River is included in Newfoundland's Labrador. This leaves to Canada a vast and little known region including all of the peninsula which drains into Hudson Bay.

The principal economic value of this bleak Arctic coast lies in the sea and river fisheries, where seal, cod, herring, trout and salmon are obtained in large quantities. The scenery is desolate but grand, and one of

the finest sights in the world is afforded by the Great Falls of Labrador, on the Hamilton River.

There are several mission stations on the numerous inlets, or river mouths, but there are no proper towns. The population numbers about 3,700, but there are also some Eskimos, especially in the far north, where the land is frozen all the year round, and also Indians in the interior. There are, however, in addition to the fisheries, almost inexhaustible supplies of timber, and pulp-mills have been established at Hamilton Inlet and Sandwich Bay. The mission stations are situated at Hopedale, Nain, Battle Harbor, Makkovik and Okak.

The scenery along the coast is often bare and desolate, but it is always grand. Islands, rock hills, great, forbidding black cliffs, and broad rivers, are the principal topographical features. So numerous are the rivers, that it is possible to mention here only a few of them. With their outlets on the two great



Photo, High Commissioner for Newfoundland

THE DECK OF A SEALING VESSEL
Showing the pelts



Photo, High Commissioner for Newfoundland

ICEBERG AT BATTLE HARBOUR, LABRADOR

bays, *Sandwich* and *Eskimo*, there are the five great rivers: Paradise, Eagle, North-west, White Bear and North.

The principal settlement is at Battle Harbor, which is a great resort for fishing vessels during the summer months. In winter the whole of this bleak region is in the grip of Arctic frost, and lies deep under snow. The following account of "The Labrador," by Dr. Kindle of the Geological Survey of Canada, is of exceptional interest,*

EARLY EXPLORATION AND SETTLEMENT.

Labrador peninsula has the paradoxical distinction of being the first discovered and the least known part of North America. Since its bleak shores were visited by the Norsemen, Bjarne Herjulfson, in 986, and by Lief, son of Eric the Red, in 1000, Labrador has attracted only a few thousand fishermen. The flood of emigration from the Old World has flowed to the south and left this great Northland untouched save by the fishermen, who occupy during the summer widely scattered sites along the eastern coast. The reason for this neglect lies in the fact that the sea bordering Labrador on the east is the great highway by which the ice from much of Arctic America and western Greenland travels southward in summer under the influence of an Arctic current. This current keeps vast ice fields moving down the coast till late in the season, and gives to even the southern parts of "the Labrador" a polar climate in mid-summer.

The English navigator, John Cabot, who re-discovered Labrador in 1497, returned with glowing accounts of the abundance of the codfish there. English, French, Spanish and Portuguese fishermen soon verified and utilized the immensely rich fisheries discovered by the Cabots. These have been continuously exploited down to the present.

Jacques Cartier and Martin Frobisher were among the early navigators who visited the coast of Labrador. Cartier stated that there was "not one cartload of earth on the whole of it." He added, however, that, "if the land was as good as its harbours it would be a great country."

The Hudson Bay Company began in 1827 to establish trading posts in Labrador. Their first post at Rigolet was opened about 1837. John McLean, an agent of the Company, made in the years 1838 and 1839 extensive journeys in Labrador, crossing from Ungava Bay to Hamilton Inlet and discovering the Grand Falls of the Hamilton River.†

PEOPLE OF LABRADOR.

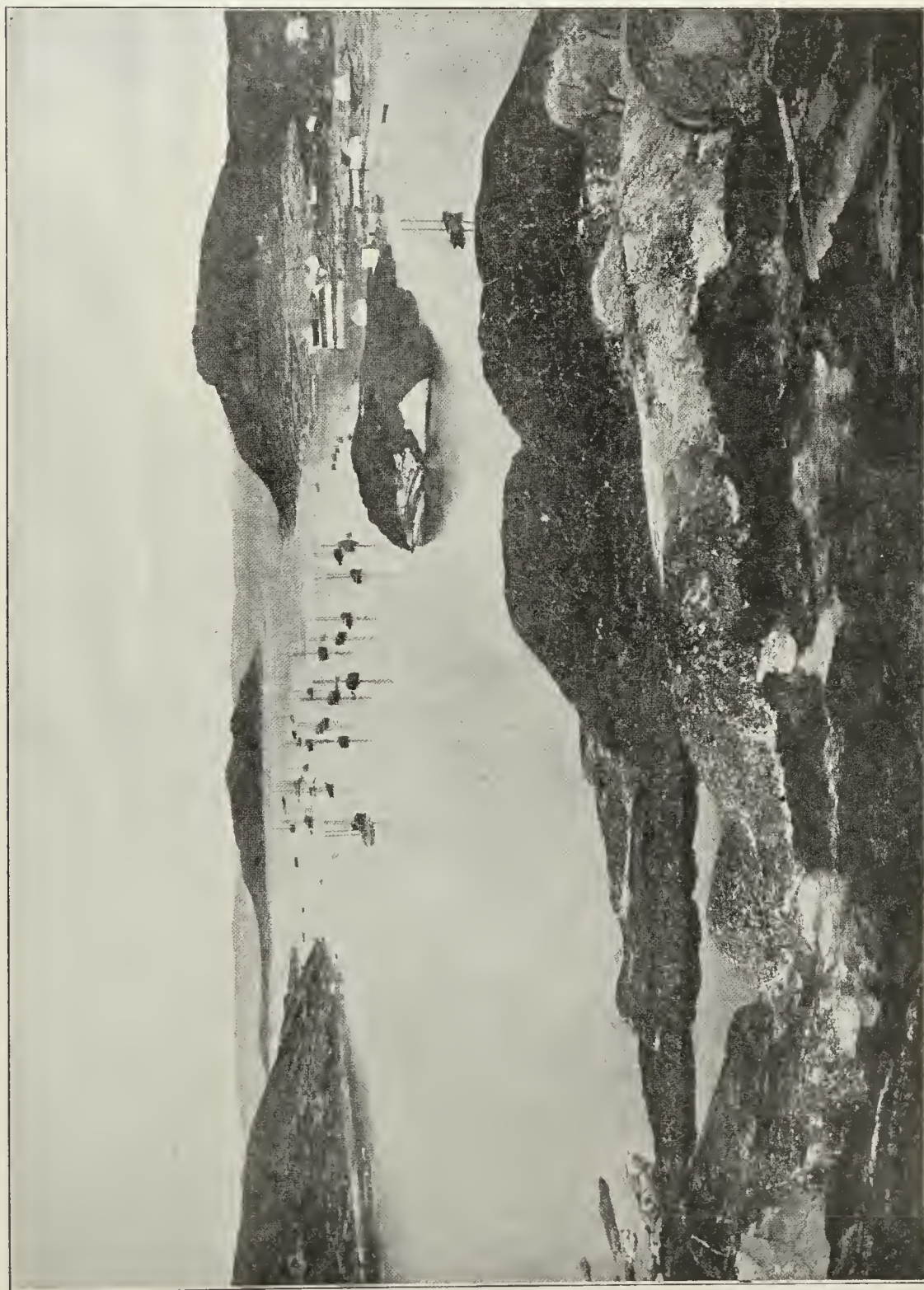
A Frenchman of parts, who had chosen the bleak coast of Labrador for a home, once described it in explanation of his choice as "a country with no fees, no lawyers and no taxes." This terse description, though written a century ago, still fits the country. Although located in the same latitude as the British Isles and having more than twice their area, the Labrador peninsula has a total permanent population less than that of a small Ontario city.

The people of Labrador peninsula belong to four groups: the Newfoundland fishermen, who spend only the summer on the eastern coastal strip belonging to Newfoundland, which is known as "The Labrador"; the Eskimo; the Indians, and the "liveyerers" or half-breeds. It is the cod fisherman from Newfoundland and his picturesque shack, always located on the shore, that first catch the eye of the visitor from the south. One of the largest groups of these fishermen is located at Indian Harbour, a centre of the cod fishing industry. Salmon fishing, which is, after cod fishing, the most important occupation of the east coast, is carried on chiefly by the "liveyerers" about the mouths of the rivers in the waters of Lake Melville and in the fiords farther north.

Labrador was divided originally between the Indian and the Eskimo, the former holding the interior, the latter the coastal strip. The Eskimo are now nearly extinct in the Hamilton Inlet region and southward. The territory formerly held by the Eskimo was approximately the same narrow shore zone now occupied by the Newfoundland and French-Canadian fishermen, but all the vast interior river and lake region belonged to the Indian. When the white man first

* "Canada North of Fifty-Six Degrees," by E. M. Kindle. Published by The Ottawa Field Naturalists' Club and the Department of the Interior, Dominion Government.

† Notes of a Twenty-Five Years' Service in the Hudson's Bay Territory, Vol. II, p. 116, 1849.



Photo, High Commissioner for Newfoundland

INDIAN HARBOUR, LABRADOR
Showing Hospital of the Deep Sea Mission

came to the Gulf of St. Lawrence, the Eskimo held the narrow coast strip as far west as Mingan opposite the western part of Anticosti Island. The acquisition of firearms from the French enabled the Indians in 1600 to drive the Eskimo eastward to the Strait of Belle Isle. Since then the Eskimo has retreated very slowly to his present southern limit at Hamilton inlet. From this point northward the widely spaced groups of Eskimo still occupy the coast and extend westward along the shore of Hudson Strait and southward along the eastern side of Hudson Bay as far as Cape Jones. South of this point the few native inhabitants on the coast are Indians.

The Indians of the eastern part of the Labrador peninsula belong to two distinct tribes—the Montagnais of the south, and the Naskaupis of the north. The Hamilton River and Lake Melville form in a general way the boundary between the hunting grounds of these two Indian groups.

According to the estimate of the Dominion Department of Indian Affairs, the total number of Montagnais Indians who came to the southern coast of Labrador in 1908 was 694. All these, with the exception of the few too decrepit to travel, spend the greater part of the year in the interior. The summer journeys in search of caribou and other game often take them a very considerable distance along the rivers and lakes. All of them make a spring or summer trip to the coast where they dispose of the winter's catch of fur and secure supplies from the traders.

The Naskaupis, who occupy the George River basin to the north of the Montagnais territory, show less inclination to visit the trading posts than the Montagnais. McLean said of them that "of all the Indians I have seen, the Naskaupis seem most averse to locomotion; many of them grow up to man's estate without once visiting a trading post." They now come to the coast to trade at two or more points.

In the old days when the time-honoured boundary between Indians and Eskimo was over-stepped by either race, savage reprisals

resulted. Battle Harbour is one of the names which has survived from the days when the Indian and Eskimo tried to revise the inter-racial boundary with the tomahawk and the spear. The Indian still lives as his ancestors did, except that canvas canoes and tents have supplanted the birch bark canoe and the skin-covered tepee.

CLIMATE.

The coastal strip and the interior of Labrador present a surprising climatic contrast. This is due chiefly to the influence of the Labrador current, which carries a stream of floating ice and bergs southward along the entire eastern coast of Labrador. Throughout the most of July the vast ice-fields move steadily southward, giving rise to a sub-Arctic temperature over the western side of Davis Bay and the adjacent coast, as far south as the Strait of Belle Isle. The ice-chilled narrow coastal zone of islands and sea-facing mainland, called "The Labrador" by the cod-fisher, is practically treeless. Only a short distance inland, however, this gauntness gives place to the heavy forestation of the interior valleys where a summer climate replaces the frigidity of the coast and offers the great contrast concisely summed up by Holme* in the statement that "a journey of twenty or thirty miles in summer-time up the country from the seas is like passing from winter to summer."

At Rigolet, near latitude 54°, where the temperature is moderated by the open sea, the thermometer has rarely registered 40° below zero in winter. During the summer of 1921, snow was absent from the mountains about Lake Melville during July and August, except for very small patches at elevations above 2,000 feet.

Mr. Davies,† writing from experience gained by residence at Northwest River, near the head of Lake Melville, states: "The heat, in summer, is often great, though it seldom lasts beyond a single day at a time. I have seen the thermometer as high as eighty-six degrees at four o'clock p.m., and once, on the 21st August, 1840, it rose as high as

* Holme, Randle F. A Journey in the Interior of Labrador, July to October, 1887: Proceedings of the Royal Society, Vol. X, p. 189, 1888.

† Davies, W. H. A. Transactions of the Literary and Historical Society, Quebec, pp. 76 and 84, Feb., 1843.

[The writer was informed that Grand Lake generally freezes over after Christmas and that frost seldom comes in the Grand Lake Valley till October.]

ninety-four degrees in the shade." Navigation, according to Davies, is open in Lake Melville about the first or second week in June. "By the latter end of November the Bay is generally frozen over." Grand Lake, because of its great depth, "rarely freezes over before the middle of December, nor does it break up till the middle of June."

FORESTS AND VEGETATION."

Black spruce (*Picea mariana*) is the predominant tree throughout the Lake Melville district, but white spruce becomes increasingly common as one proceeds westward or inland. The white birch (*Betula pendula*) is a very common tree, and in tracts which have been burned over, it has taken possession of the ground to the exclusion of all other trees. The largest observed specimens of the birch, however, were found sparsely distributed in forests of black and white spruce.

Where the birch constitutes the whole of the forest, its light green foliage distinguishes it at considerable distances from the darker evergreen forests. The forest colour effects vary with the illumination and the distance from the observer. Under a grey sky the black spruce forests appear nearly black in the middle distance, dark green in the foreground, shading off into deep dark blue in the distance. Under a half-clouded sky the forested mountain slopes are marked with blotches of dark blue on a field of light green, the colour scheme changing constantly with the shifting of the clouds. Sometimes at the finish of a shower a spruce-covered island, rainbow-arched, will furnish a picture not easily forgotten. Labrador has been very appropriately described as the land of rainbows. In many places sphagnum moss, into which one sinks to the knees, carpets the ground in a Labrador forest. When this is absent caribou moss often replaces it, and where the trees are not too closely spaced the ash grey of the moss gives a colour contrast to the dark green of the spruce visible at a considerable distance.

These observations on Labrador forests apply to a region in latitude 54°, with which the writer is personally acquainted. But the observations of Mrs. Leonidas Hubbard, whose journey extended through Lake Melville and north to Ungava Bay, indicate

that along the north-south valleys forests continue to show fair-sized trees up to latitude 58° and even beyond. She reports having seen one tree with a circumference of nine feet, and states that "the valley is mostly well wooded with spruce and balsam as far as Mabelle Island, and here the spruce reaches splendid size." According to Turner,* at Fort Chimo, about latitude 58°30', the walls of the buildings are constructed of the larger logs from the local forests, where the trees seldom exceed ten inches in diameter. On the Whale River trees attain a height of 30 to 50 feet within two miles of Ungava Bay.

On the mountain slopes and over much of the plateau region the forests of the river valleys are replaced largely by lichens, emerald green moss and a considerable variety of flowering plants. Trees when not entirely absent are often represented by a variety of Arctic willow, and a dwarfed birch, with branches seldom rising more than two or three inches above the rock crevices that protect their roots. Certain types of upland afford dwarfed spruce not higher than a man's shoulders and others yield trees 15 to 35 feet high.

Away from the valleys in Labrador, mosses, lichens, dwarfed larch, willows and alders quickly replace the forests. Nearly everywhere the white blossom of the Labrador tea is seen during July. As its blossoms fade the dark pink lambskill takes its place, decorating the woods with a profusion of delicate colour throughout the latter part of the summer. About the first of August the half ripe low-bush cranberries begin to show rosy cheeks above the moss and a little later the rich, dark purple bearberries and blueberries spread a feast of delicious fruit and ravishing colour on the grey rocky summit of every hill and mountain. The wild currant, crowberry and baked-apples are among the other refreshments which the hill tops set before their visitors.

MINERALS.

The Labrador peninsula has nearly the area of Alaska and it is in about the stage of exploration and economic development which had been reached by that other great peninsula when Russia sold it to the United States, as a supposedly worthless possession, for

* Turner, L. M. 11th Ann. Rept., Smithsonian Institution, Bureau of Ethnology, p. 173, 1894.

seven and a quarter million dollars. But it is not easy for any geologist, who has for a season felt the spell of this vast and very slightly explored land, to avoid suggesting that there are reasons for believing Labrador will eventually contribute to the world's supply of mineral wealth. Neither the fishermen nor the fur traders have ever sought to develop any other wealth in Labrador beyond that furnished by the cod and the pelts. They have, however, given a few hints to the prospector which have thus far remained unheeded.

chalcocite and other copper ores which they found near trap lines in the interior. Low found extensive deposits of magnetite and other ores of iron at several points in Labrador.* But thus far little if any attempt to ascertain their commercial possibilities has been made. Very extensive beds of banded iron ores also occur on the Nastapoka Islands, which extend along the east side of Hudson Bay for a hundred miles north of Little Whale River.† Dr. Bell and Mr. Low record the occurrence of a vein of galena on the west coast of Labrador



Photo, High Commissioner for Newfoundland

HUDSON BAY CO.'S OFFICER WITH NORTH-WEST RIVER ESKIMOS ON THE COAST OF LABRADOR

As early as 1840 a chunk of native copper was found on the shore of Hamilton inlet. Its source remains unknown. The first intimation of the existence of the famous Michigan copper district came from the farmers of the Central States who picked up pieces of native copper in their fields long before the location of their source was known. In the Lake Melville district there [are] various half-breed trappers (the "liveyerers") who have specimens of

near Richmond Gulf. On the same coast Low found pyrrhotite containing small quantities of nickel.

Professor A. P. Coleman, of Toronto University, who has a personal knowledge of north-eastern Labrador, as well as an intimate knowledge of the mining districts of northern Ontario, makes the following significant statement and prediction: "It may be said that the largest area of relatively unexplored territory in this northern hemis-

* Low, A. P.: *Op. cit.*

† Low, A. P., *The Cruise of the Neptune*, Gov. of Canada pp. 239-245, 1906.

phre is to be found in northern Quebec ; it consists of Precambrian rocks like those which include the rich mines of gold, silver, iron and copper of Lake Superior and northern Ontario. The land is almost unoccupied and means of communication are difficult ; yet, in the opinion of the writer, the next great development of mining industry is likely to occur in Quebec and spread northward and eastward into Labrador.”*

The mining engineer may be reminded that while the Labrador coast-line was the first part of North America to be seen by Europeans, most of the interior is still practically an undiscovered country. The use of the aeroplane should soon inaugurate

a new era in the exploration of the interior. The thousands of lakes which are scattered throughout the peninsula furnish peculiarly favourable conditions for the use of the hydroplane in Labrador. It is a region where vast areas of bare rock give the prospector exceptional opportunities. It is a country which can be recommended to the prospector who has the skill to combine trapping and prospecting. The men who can do this have the certainty of a living from their traps and fair chance of proving that old Jacques Cartier was slandering the country when he called it the “ Land that God gave to Cain.” (See *Government, Commerce, Canada, etc.*)

* Coleman, A.P., Mining Possibilities in Labrador, *Can. Mining Journ.*, Vol XLV, p. 870, 1924.



NEW ZEALAND

NEW ZEALAND proper comprises North Island, which has an area of 44,130 square miles; South Island and the adjacent islets, having an aggregate area of 58,120 square miles; and Stewart Island, the small southern appendage, having an area of 662 square miles. All of them, although separated from each other by narrow straits, are possessed of the same favourable climatic conditions and are similar in general appearance, but differ in the density of their population, fertility of soil, staple products, and principal topographical features.

No better descriptive title could be found for New Zealand than the Britain of the South. Unlike all other portions of what is geographically known as Australasia, these islands have a thoroughly temperate climate, a steady though abundant rainfall, numerous perpetual rivers and lakes of fresh water, and the flora and fauna only of a temperate clime. Although it bears a certain likeness to Tasmania, the climate is cooler and the rainfall less than that of the west coast of this *island of fruit*.

Topographical features, as well as latitude, which places it beyond the reach of coral and palm, account for the marked difference in the whole aspect of New Zealand when compared with the neighbouring continent-island of Australia, from which it is divided by 1,200 miles of stormy sea. South Island is traversed by the lofty Alps, which are crowned with perpetual snows and glaciers, and North Island has its chief characteristic in hot lakes and volcanic peaks.

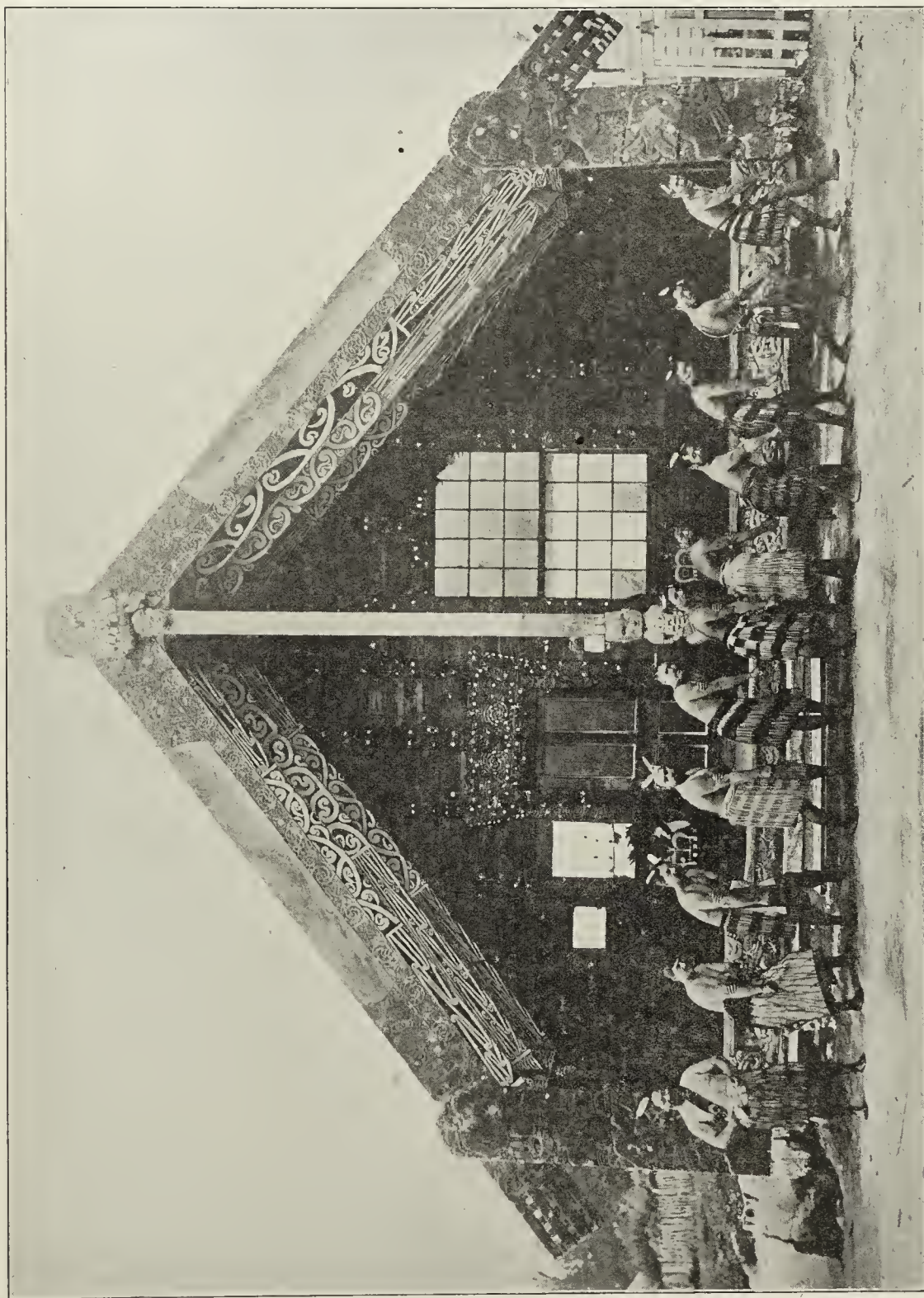
Like all the self-governing States of the British Commonwealth, New Zealand now possesses its own dependencies, situated hundreds of miles from its shores, over which it exercises exclusive control, subject only to the British Crown. These are all islands in the Pacific Ocean, and will be treated separately in later pages.

The total population of the Dominion and its colonies at the census in 1926 was 1,463,276, and is now about 1,606,278; but the white inhabitants of New Zealand proper number only 1,448,972. The average annual increase in the white population is approximately 21,000 a year.

DAWN IN THE PACIFIC.

Although Abel Jansen Tasman, who was one of the first to sight the Australian Continent, explored certain portions of the coast line of New Zealand in 1642-3, he barely penetrated the veil of mystery which enshrouded this portion of the Pacific Ocean.

There is no record of any visit to New Zealand after Tasman's departure until the time of Captain Cook, who, after leaving the Society Islands, sailed in search of a southern continent then believed to exist. He sighted land on the 6th October, 1769, at Young Nick's Head, and on the 8th of that month cast anchor in Poverty Bay. After having coasted round the North Island and the South and Stewart Islands—which last he mistook for part of the South Island—he took his departure from Cape Farewell on the 31st March, 1770, for Australia. He



A "HAKA" OR MAORI WAR DANCE IN FRONT OF A CARVED "WHARE" Photo, New Zealand Government

visited New Zealand again in 1773, in 1774, and in 1777.

M. de Surville, a French officer in command of the vessel *Sainte Jean Baptiste*, while on a voyage of discovery, sighted the north-east coast of New Zealand on the 12th December, 1769, and remained for a short time. A visit was soon after paid by another French officer,



Photo, New Zealand Government
A MAORI IDOL

M. Marion du Fresne, who arrived on the west coast of the North Island of New Zealand on the 24th March, 1772, but on the 12th June following, was murdered at the Bay of Islands by the natives.

Captain George Vancouver in the *Discovery*, accompanied by Captain Broughton in the *Chatham*, anchored in Dusky Bay, on the west coast of the South Island, on the 2nd November, 1791, and remained there

until the 21st. After leaving Dusky Bay the two vessels parted company during a gale, not meeting again until their arrival at Otaheite. During the passage of the *Chatham* to this place, Captain Broughton discovered and named Chatham Islands (on the 29th November, 1791).

On the 5th November, 1792, the *Britannia* (Captain Raven) anchored in Facile Harbour, on the west coast of the South Island. She had come from Sydney for the purpose of procuring seal-skins. A party of men was landed and accommodation for them built and, on the 1st December, the *Britannia* sailed for the Cape of Good Hope. On her return, in December, 1793, the men were found to be in good health. So far as is known, this was the first instance of Europeans being left in New Zealand to their own resources.

The Spanish expedition in the vessels *Descubierta* and *Atrevida*, the former commanded by Alejandro Malaspina and the latter by José de Bustamente y Guerra, sighted the west coast of the South Island on the 25th February, 1793. A boat's crew went into Doubtful Bay, whilst the vessels remained off the entrance. Next morning they unsuccessfully attempted to enter Dusky Bay, but the weather becoming stormy they left for Sydney, after giving Spanish names to several places in and around Dusky and Doubtful Bays.

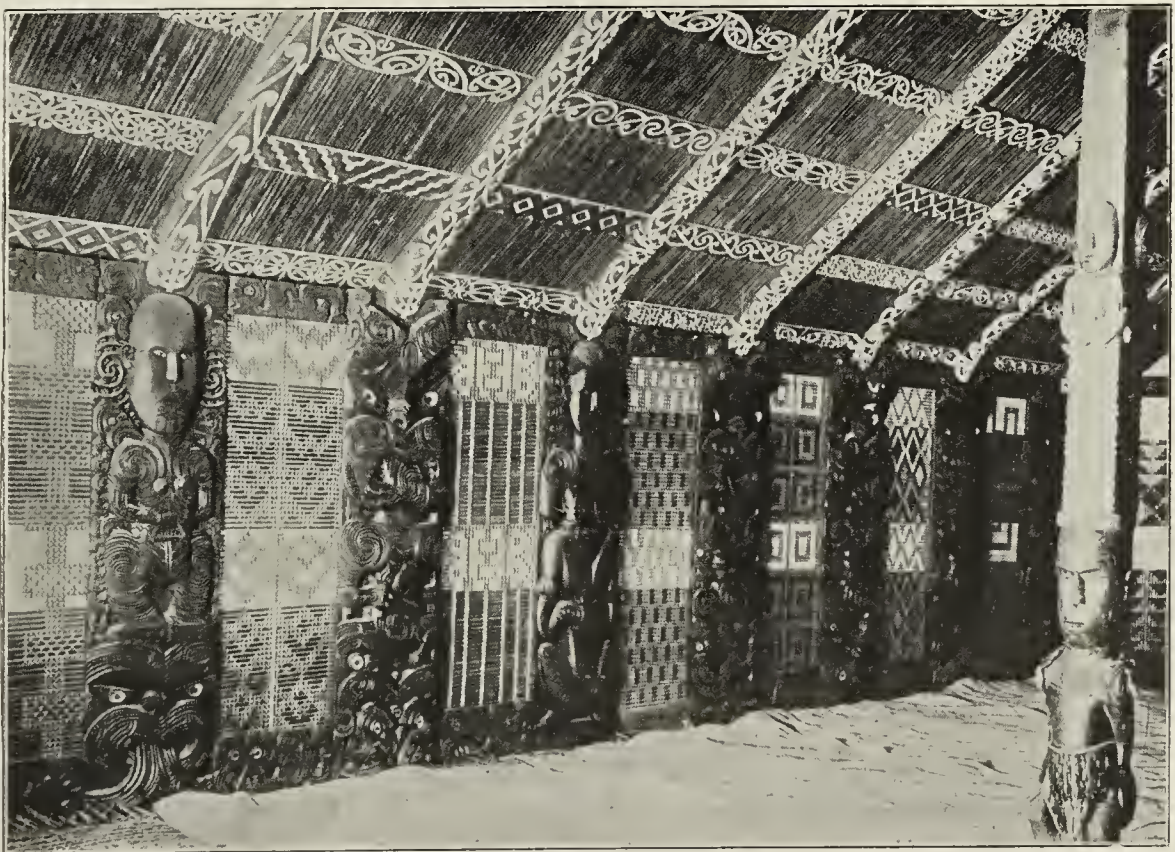
In 1793 also the *Daedalus*, under the command of Lieutenant Hanson, was sent by the Government of New South Wales to New Zealand, and two chiefs were taken thence to Norfolk Island. There was after this an occasional intercourse between the islands of New Zealand and the English settlements in New South Wales.

On the 23rd May, 1820, Thaddeus Bellinghausen, in command of the two Russian ships *Wostock* and *Mirny*, sailed into Cook Strait, in the course of his voyage round the world. The vessels anchored in Queen Charlotte Sound on the 28th May, and remained there till the 3rd June.

In 1814 the first missionaries arrived in New Zealand—Messrs. Hall and Kendall—who had been sent as forerunners by Mr. Marsden, chaplain to the New South Wales Government. After a short stay they returned to New South Wales, and on the 19th November of that year again embarked



CARVED MAORI MEETING HOUSE (EXTERIOR)



INTERIOR OF MAORI MEETING HOUSE *Photos, New Zealand Government*

*Photo, New Zealand Government*

OLD MAORI TRENCHES CONSTRUCTED DURING THE NEW ZEALAND WAR

in company with Mr. Marsden, who preached his first sermon in New Zealand on Christmas Day, 1814. He returned to Sydney on the 23rd March, 1815, leaving Messrs. Hall, Kendall, and King, who formed the first mission station at Rangihoua, Bay of Islands, under the auspices of the Church Missionary Society. Six years later, in 1821, the work of evangelisation was put on a more durable basis; but the first station of the Wesleyan mission, established by Mr. Leigh and his wife, at the valley of the Kaeo, Whangaroa, was not taken possession of until the 10th June, 1823.

If New Zealand in the first epoch offers but few examples of such schemes of empire as those which cast a halo of romance around the birth of Rhodesia, the reconquest of the Sudan, and the making of the Indian Empire, the second stage of its development is full to overflowing; and it is the events which followed on the "Stewart Incident" in 1830 which need fuller investigation, as they constitute the rise of New Zealand, and the struggle of England and France for dominion in these islands.

THE STEWART INCIDENT.

In 1838 a Select Committee of the House of Lords listened to the evidence of an early settler in New Zealand, named Montefiore, who graphically described the doings of a certain Captain Stewart who, in 1830, allowed his ship to be chartered by a native chief named *Rauparaha* of Cook's Strait, and sailed to Banks Peninsula on a feud of blood and war. Massacres of men, women, and children, took place, and the fighting was fierce between the Maori and the invading Volsung. Stewart afterwards went to New South Wales, where he was tried and detained, but effected his escape and died a natural death on the high seas.

Between 1830 and 1840 many missionaries went to New Zealand and commenced the education of the more tractable Maoris, doing some good work in this direction. In many instances the early colonists strongly advocated the immediate confiscation of the Maori lands which were unoccupied, and did not scruple to take advantage of their position

to influence the sale of these lands to themselves at a ridiculously low price ; nevertheless there were many notable exceptions to this rule, especially among the missionaries, men like Marsden and others who did much towards the civilisation of that noble race the Maori, whose early folk-lore, verse and oratory reflected a depth of thought and pathos which was first brought to light by the greatest of all New Zealand Administrators, Sir George Grey.

A DEPENDENCY OF NEW SOUTH WALES.

In 1832 the British Government was petitioned by thirteen Maori chiefs for protection against the invasions of neighbouring

war-like tribes ; and after some delay Resident Bushby was installed in North Island, and placed under the authority of Governor Bourke of New South Wales ; but, notwithstanding the frequent requests made by Bourke that greater power should be given the first British Resident in New Zealand, the Imperial Government continually refused him all authority, and he was compelled to stand idly by and watch the scenes of internecine warfare and land-grabbing by the colonists, who now numbered several thousand, without being able to insist upon the observance of British law or to enforce the respect of life and property.

FRENCH CLAIMS.

Then came the second act in the drama of New Zealand. In 1838 Baron de Thierry, who had previously bought a small tract of country near Kokianga, but had sought French and English recognition of his claim in vain, re-entered with a bomb-shell in the form of a proclamation issued from Tahiti calling for recognition of himself as lawful "Sovereign of New Zealand." The reply to this preposterous declaration was little less ridiculous than the declaration itself. Bushby, the Resident, drew up a petition which was signed by many native chiefs whose lands extended far over North and South Islands, asking earnestly for British protection in the name of the "United Tribes of New Zealand." Surely the vested interests of British settlers, which were considerably greater than those of De Thierry, France, or any other foreign country, should have been sufficient to induce the British Government to act without the necessity of a petition from the Maoris ; although it must be said that such a course was advisable as it showed in an unmistakable way that the natives, whose title to the territory was that of hereditary right, desired to cede the sovereignty of New Zealand to Great Britain.

Thierry paid no attention to Bushby's proclamation, and landed in the colony with a few followers, but finding that his claim was ridiculed, and that no recognition could be obtained,



Photo, New Zealand Government
AN OLD MAORI CHIEF

he gracefully retired from the undertaking and returned to Tahiti, over which a French protectorate was proclaimed in 1838.

This failure, however, did not end French designs in New Zealand. Bishop Pompallier, Langlois, D'Urville, and several others, purchased large tracts of land, and established missions. It has since appeared that the money for many of these undertakings was provided by the French Government, who also agreed to send a warship as guardian to the first French colony in New Zealand.

THE NEW ZEALAND COMPANY.

An ex-British officer, Colonel Wakefield, backed by a number of financiers, had in the meantime succeeded in purchasing several large areas of land on behalf of what was known as the "New Zealand Company." Over a thousand emigrants were despatched from England to occupy this territory, and arrived in 1840.

Things were assuming a dangerous outlook, and a deadlock seemed inevitable. The Maori became discontented with the land-grabbing policy of the British colonists. French claims were urged, and the settlers themselves were estranged from the company under whose auspices many of them had been brought to New Zealand.

CESSION TO GREAT BRITAIN.

The Governor, foreseeing the difficulties which would arise if the French obtained a strong footing in these islands, and receiving the sanction of the Imperial Government, proclaimed British Sovereignty over the whole of New Zealand. A great meeting of chiefs was arranged, and at Waitangi, Bay of Islands, a treaty was signed on 29th January, 1840, whereby the Maori ceded all rights in these islands to the Crown of England, but retained their lands and forest reserves. The

signatures to the treaty of Waitangi numbered 512 in less than six months.

At last came a ray of hope in the person of a Mr. Spain, sent out by the Imperial Government as Land Commissioner. After some delay an attempt was made to adjust all the conflicting land interests, but before this could be accomplished the first blood had been shed between the Maori and the English settler, which gradually developed into the New Zealand War, although long deferred by the genius of Sir George Grey.

The fight at Wairaw, in 1843, was caused by settlers entering disputed territory and constructing homesteads, which the Maori either pulled down or burnt. Local justices considered this to be arson, and attempted to effect the arrest of the two offending chiefs. A fight took place, which resulted in the death



Photo, New Zealand Government

AN OLD MAORI WOMAN



PIONEERING IN NEW ZEALAND
A railway construction camp in the early days

Photo, New Zealand Government



MAORI WOMAN AND CHILD

Photo, New Zealand Government

of more Englishmen than Maoris ; but again we have an example of the higher caste and more noble nature of the Maori than the natives of any other Pacific island, for they did not attack the settlers, whom they considered to be trespassers, but simply destroyed their huts and retired, only fighting when the liberty of their chiefs was threatened by force.

A rebellion took place in North Island in 1844, and a small column of British troops and Colonial Volunteers was repulsed. Reinforcements were despatched from the United Kingdom, but British prestige was ebbing fast.

It was in this period of tumult and disorder that the Imperial Government showed the first signs of strong and decisive action, despatching Sir George Grey and British troops. The rebels were defeated in the north, but pardoned without the imposition of heavy fines or the confiscation of their lands ; internecine warfare was prohibited, likewise the sale of spirits and firearms ; all disturbances were rigorously suppressed, but land-grabbing was also checked, and there came gradually into being laws alike for white man and Maori.

It is sufficient to say that Grey thoroughly understood the Maori and the Maori understood Grey. Even the restless chief Rauparaha, who had been captured and released by the authorities, himself voluntarily obtained the signatures of many chiefs to a petition to the Queen of England to make Sir George Grey life-long Governor of New Zealand.

THE NEW ZEALAND WAR.

In 1855 Grey left the country, and about two years later disaffection became manifest. Land troubles again arose over what was known as the *Taranaki Question*, and various Maori chiefs joined hands and established a kingdom in the north-east, but the chosen ruler was friendly to British interests, and peace was maintained for several years.

Slowly but surely disaffection spread over a large portion of the south of North Island, and in 1860 the first engagement in the New Zealand War took place in the disputed Taranaki Territory, owing to the enforcement of a judicial decree regarding the land rights of two chiefs.

Again the personal influence of Sir George Grey, who had returned to the colony at the



SPECIALLY DRAWN FOR THE *ENCYCLOPEDIA OF THE BRITISH EMPIRE* BY A.H. LEE.

first signs of trouble, caused hostilities to cease, but the spirit of rebellion was rife, and in less than a year trouble again broke out. This war, which continued in a desultory manner for nearly ten years, was conducted on the most humane principles, although the actual fighting was at times very fierce. The Maori often risked their lives in the face of fire to give drink to the wounded British

and showed principles of humanity which were totally lacking in the natures of the aborigines of Australia, Tasmania, or any of the Pacific Islands.

Rebellion of a more isolated character again broke out in 1869-70, when an exiled chief returned and laid waste the lands and villages of Maori allies of the British; but peace may be said to have commenced in 1870, when the home government were pressing for the return of the Imperial troops just before the outbreak of the Franco-German War.

Sir George Grey and Sir Donald McLean, the head of Native Affairs, quickly pacified the country, and in 1884 the Chief-Chief, or King of the Maori, visited England and was received in audience by Her Majesty Queen Victoria. The other chiefs, who were given an official reception in Auckland were cheered on their way through the streets, and the Maori agreed that the "Two races should henceforth live as one," and they have so lived.

MODERN DEVELOPMENT.

The third and present stage in New Zealand's history is one of political reform, and industrial and commercial progress. The old provincial legislatures were abolished; large public works undertaken by the Government, and several thousand miles of railroad have been constructed. Although times have not always been so prosperous as was expected with the influx of capital and immigration, the progress of New Zealand has been steadily improving.

The question of the capital city was one of the first to confront the Legislature; Auckland was jealous of Wellington, and neither could bring itself entirely to agree to the other being recognised as the capital of the colony, until, in 1865, the matter was referred to Australian arbitration, and Wellington, owing to its central position, was chosen to become the premier city of New Zealand.

The early "Maori Representation," and "Land Courts," introduced by Sir George Grey, emerged into Maori Councils; and the education of the natives by Marsden,



Photo, New Zealand Government

A MAORI WOMAN

soldiers, who returned these kindnesses in many ways, and from first to last held these brave and humane warriors in the highest esteem.

The Maoris faced the fire and bayonets as bravely as the Dervishes did those of Kitchener's square on the plains of Omdurman; but, unlike the cruel warriors of the desert, they cared for the wounded more tenderly than many of the warring nations of Europe,



OROKAU AND MT. TONGARIO

Photo, New Zealand Government

The village of Orokau, in North Island, is a Maori Settlement

Williams, and other excellent missionaries, laid the foundation for the higher education of the Maori of to-day, who are respected and treated as equals by the British in New Zealand. Even in Australia what is left of this fine race are welcomed on an equal footing with white emigrants, notwithstanding the stringency of the laws excluding all other coloured labour. No higher praise can be paid to those who have been responsible for the moulding of the young Maori of to-day than to say that a very large number of their protégés are civilised, Christianised and educated.

RISE TO DOMINION STATUS.

British sovereignty was proclaimed over New Zealand in January, 1840, and the country became a dependency of New South Wales until the 3rd May, 1841, when it was made a separate colony. The seat of Government was at Auckland, and the Executive included the Governor, and three gentlemen

holding office as Colonial Secretary, Colonial Treasurer, and Attorney-General.

The successors to these first officials, appointed in 1841, 1842, and 1844, respectively, continued in office until the establishment of Responsible Government on the 7th May, 1856. Only one of them—without ceasing to be Attorney-General—sat as a member of the first General Assembly (being Speaker of the Legislative Council) which was opened on the 27th May, 1854. During the session of that year there were associated with the permanent members of the Executive Council certain members of the House of Representatives. These latter held no portfolios.

The Government of the Colony was at first vested in the Governor, who was responsible only to the Crown; but in 1852 an Act granting representative institutions to the colony was passed by the Imperial Legislature. Under it the constitution of a General Assembly for the whole colony was provided for, to consist of a Legislative Council, the

members of which were to be nominated by the Governor, and of an elective House of Representatives.

The first session of the General Assembly was opened on the 27th May, 1854, but the members of the Executive were not responsible to Parliament. The first Ministers under a system of Responsible Government were appointed in the year 1856. By the Act of 1852 the colony was divided into six provinces, each to be presided over by an elective Superintendent, and to have an elective Provincial Council empowered to legislate, except on certain specified subjects. The franchise amounted practically to household suffrage. In each case the election was for four years, but a dissolution of the Provincial Council by the Governor could take place at any time, necessitating a fresh election both of the Council and of the Superintendent. The Superintendent was chosen by the whole body of electors of the province; each member of the Provincial Council by the electors of a district. The Provincial Governments,

afterwards increased to nine, remained as integral parts of the Constitution of the colony until the 1st November, 1876, when they were abolished by an Act of the General Assembly, that body having been invested with the power of altering the Constitution Act. On the same day an Act of the General Assembly came into force, which sub-divided the colony (exclusive of the areas included within municipalities) into counties, and established a system of local government.

In September, 1907, the style and designation of the colony was changed with the King's approval to that of "The Dominion of New Zealand." (See *Government*.)

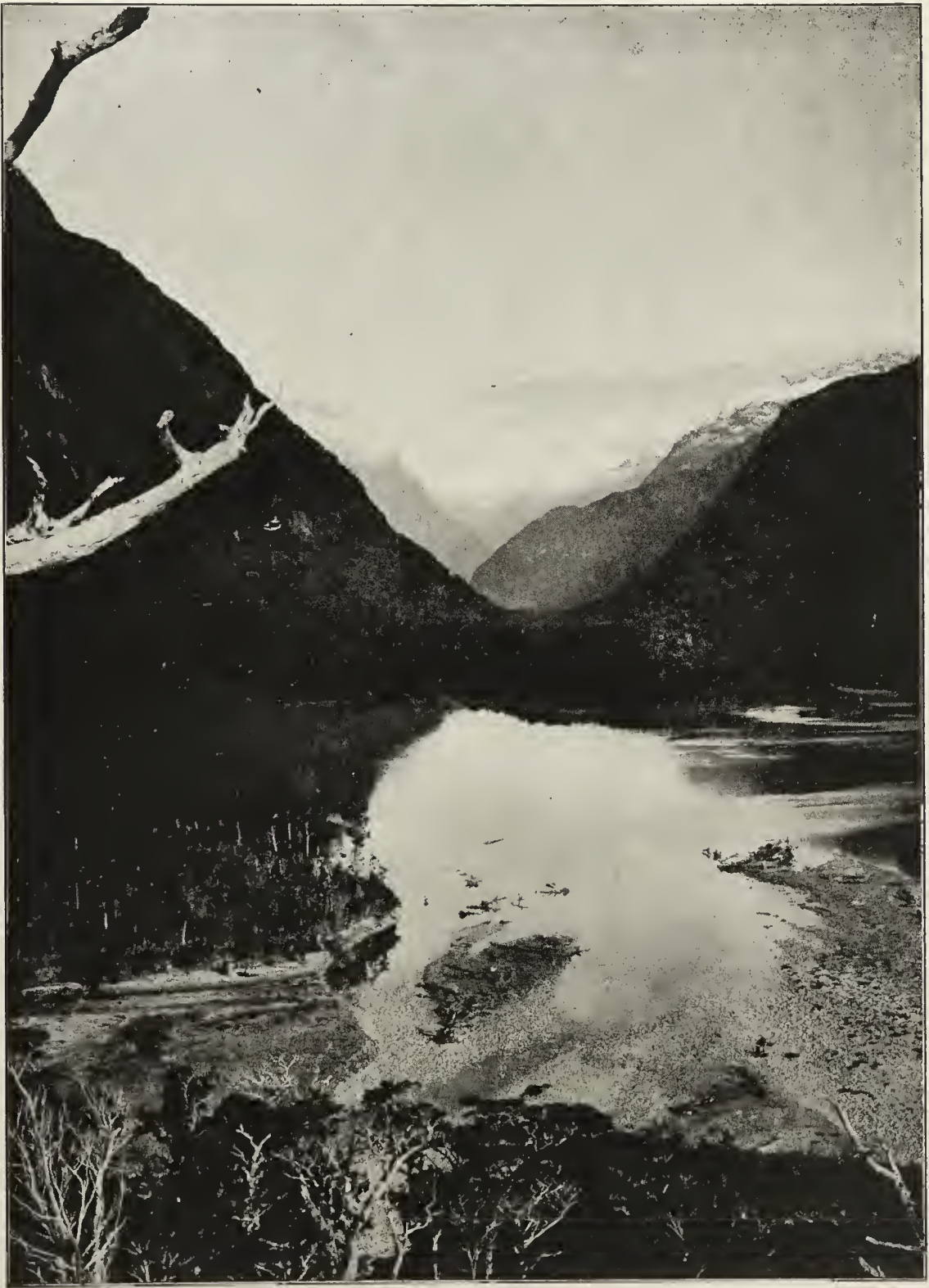
COUNTRY AND CLIMATE.

Starting in the extreme south of Stewart Island, the Alps, crowned with snows and glaciers, which give rise to numerous swift-running rivers, follow the western coast of South Island to Cook Strait, the "funnel of the Pacific," which divides the two New Zealands, and is noted for the velocity of



MT. NGAURUHOE IN ERUPTION

Photo, New Zealand Government



THE FIORDS OF SOUTH ISLAND

Photo, New Zealand Government

the wind which almost continually blows across its turbulent waters.

The mountains skirting the coast of South Island cause the western littoral to be steeper and narrower than the country on the east side of the range, which is principally composed of the fertile Canterbury Plains, clad with cultivated fields, verdure and forests. In this region wheat and other crops are grown in large quantities, and cattle and sheep are reared in thousands.

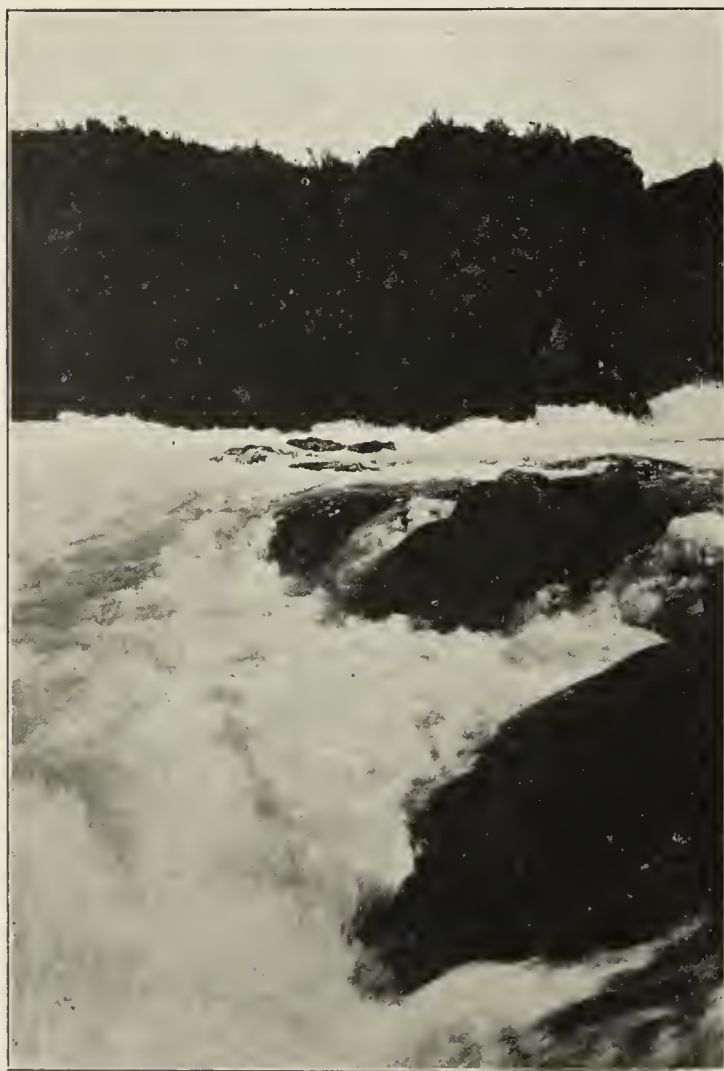
The Southern Alps, culminating in Mount Cook, which is 12,349 ft. high, offer some of the grandest scenery in the world. There are dangers, however, in climbing in these regions. The weather conditions change rapidly ; the snow-line is low, and there are

but few *shelters*, which necessitate a much more extensive equipment than that required for the Swiss Alps. All these difficulties, which add a zest to climbing in these regions, are made surmountable by the hospitality and willingly given assistance of the New Zealand Alpine Club.

North Island, where dwell the majority of the remaining 64,000 Maoris, is also traversed in many directions by lofty mountain ranges, which number among their peaks several volcanoes ; but the chief points of interest are the boiling springs and lakes of Auckland, and the dense forests of pine in the extreme north of the island.

The climate of New Zealand—an important factor when considering the future possibilities of any country—owes much of its salubrity to the high winds which prevail in almost every district, except those enclosed by a circle of mountains. A considerable portion of the territory of both islands is covered by lakes, marshes, and forests ; and the rainfall is considerably greater on the west coast than it is on the east, owing to the prevailing north-west winds which bring a sea-borrowed moisture that is condensed by the mountains. The rainfall in the fiord region, which lies on the south-west coast of South Island, amounts to 120 in. annually ; this creates a moist atmosphere which would not be altogether healthy were it not for the purifying effects of the strong and invigorating sea-breezes which sweep across these narrow islands. Snow is seldom seen, except on the Alpine summits and passes, but frosts occur during the winter months (summer—November to May). South and Stewart Islands are the coldest and most windy, but contain the largest area of fertile land. Even here the winter temperature is several degrees above the London average. A frosty night is the certain precursor of a bright still morning.

The summer months in New Zealand are the winter months in the United Kingdom, the Dominion being in the Southern Hemisphere, and the northern part is hotter than



Photo, New Zealand Government
ARATIATIA RAPIDS

the south. The great length of the Dominion from north to south secures considerable diversity of climate and products. The intermittent droughts to which the Australian States are subject are unknown in New Zealand. The climate is like that of Great Britain only warmer and more equable. There are no extremes of heat or cold, but the climate in the South Island is not so warm in summer nor so mild in winter as

Stewart Island

Much of Stewart Island—in the extreme south—which has an area of about 665 square miles, is covered with rocky hills and forests, and is but little developed, although in certain parts excellent pasture lands for sheep and cattle are available.

It is a great tourist resort during the summer months, and is easily reached by



Photo, New Zealand Government

A GARDEN NEAR WELLINGTON, THE CAPITAL

that in the North Island. The mean annual temperature of the North Island is 56 deg. and of the South Island 52 deg. January is generally the warmest and driest month, the mean maximum for that month being 72 deg. in the North Island and 70 deg. in the South. July is generally the coldest and wettest month, the mean minimum for that month being 43 deg. in the North Island and 36 deg. in the South. The whole country is very healthy, and the death rate is exceptionally low.

steamer from the Bluff, distant about 25 miles. The principal peak is Mount Anglem, 3,200 ft. above sea-level. Most of the island is rugged and forest-clad; the climate is mild; and the soil, when cleared of bush, is fertile.

The chief attractions are the numerous bays and fiords. Paterson Inlet is a magnificent sheet of water, about 10 miles long by four miles wide, situated close to Half-moon Bay, the principal port, where over 200 people live. Horseshoe Bay and Port William



Photo, New Zealand Government
ON THE MILFORD TRACK, NEW ZEALAND

are within easy reach of Half-moon Bay. Port Pegasus, a land-locked sheet of water about 8 miles by $1\frac{1}{2}$ miles, is a very fine harbour. At "The Neck" (Paterson Inlet) there is a settlement of Maoris and half-castes. The bush is generally very dense, with thick undergrowth. Rata, black-pine, white-pine, miro, and totara are the principal timber trees. Fish are to be had in great abundance and variety; oyster-fishing forms an important industry. Wild pigeons, ducks, and mutton-birds are plentiful.

South Island

The extreme length of the South Island, from Jackson's Head, on Cook Strait, to Puy-

segur Point, at the extreme south-west, is about 525 statute miles; the greatest distance across at any point is, in Otago (the southernmost) District, about 180 miles. It is intersected along almost its entire length by a range of mountains known as the Southern Alps. Some of the summits reach a height of from 10,000 ft to 12,000 ft., Mount Cook, the highest peak, rising to 12,349 ft.

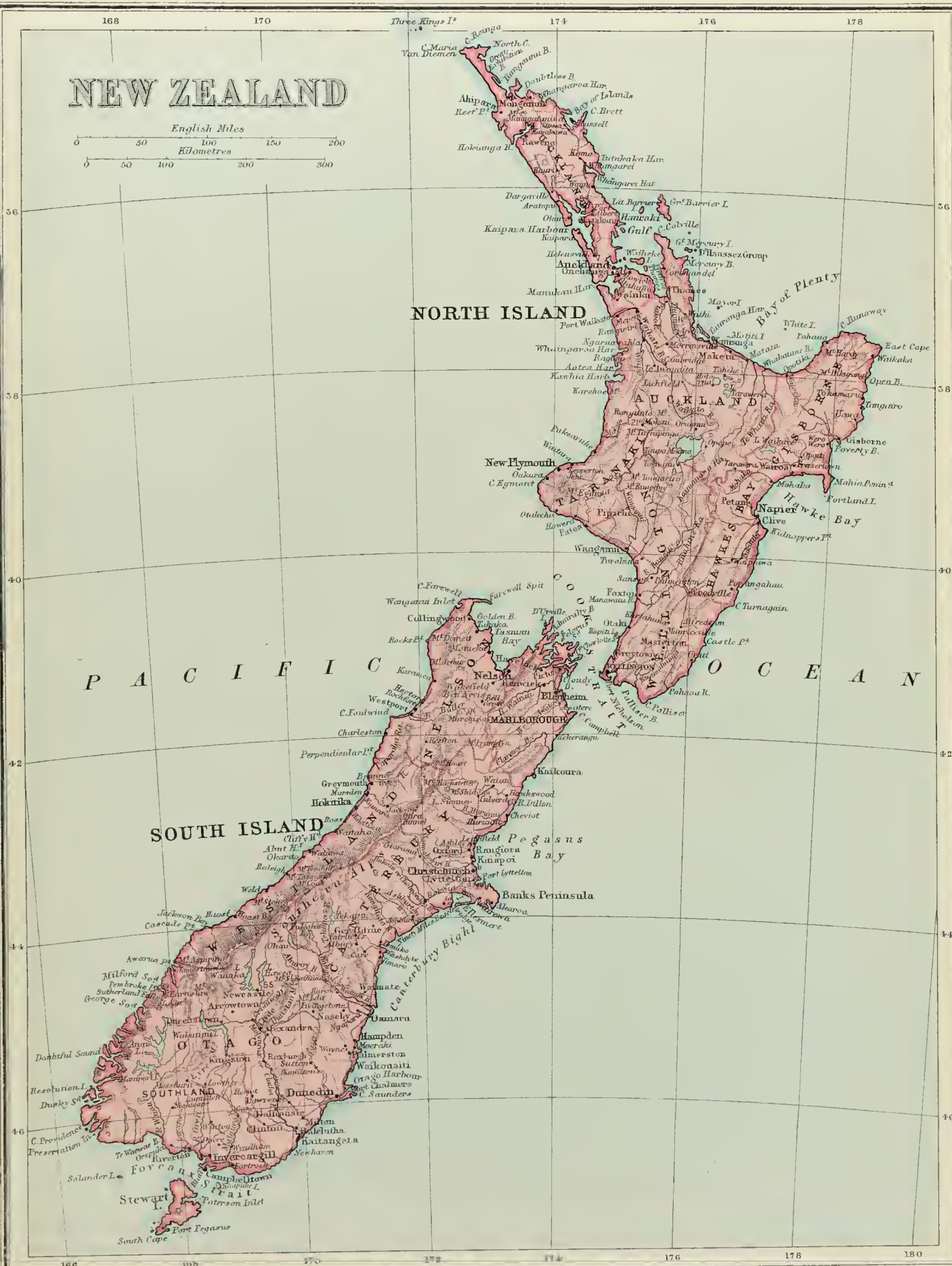
In the south, in the neighbourhood of the sounds and Lake Te Anau, there are many magnificent peaks which, though not of great height, are, owing to their latitude, nearly all crowned with perpetual ice and snow. Further north the mountains increase in height—Mount Earnshaw, at Lake Wakatipu; and Mount Aspiring, at Lake Wanaka, which has been aptly termed the New Zealand Matterhorn, is 9,949 ft. in height. Northward of this again are Mount Cook (or Aorangi), Mount Sefton, and other fine peaks.

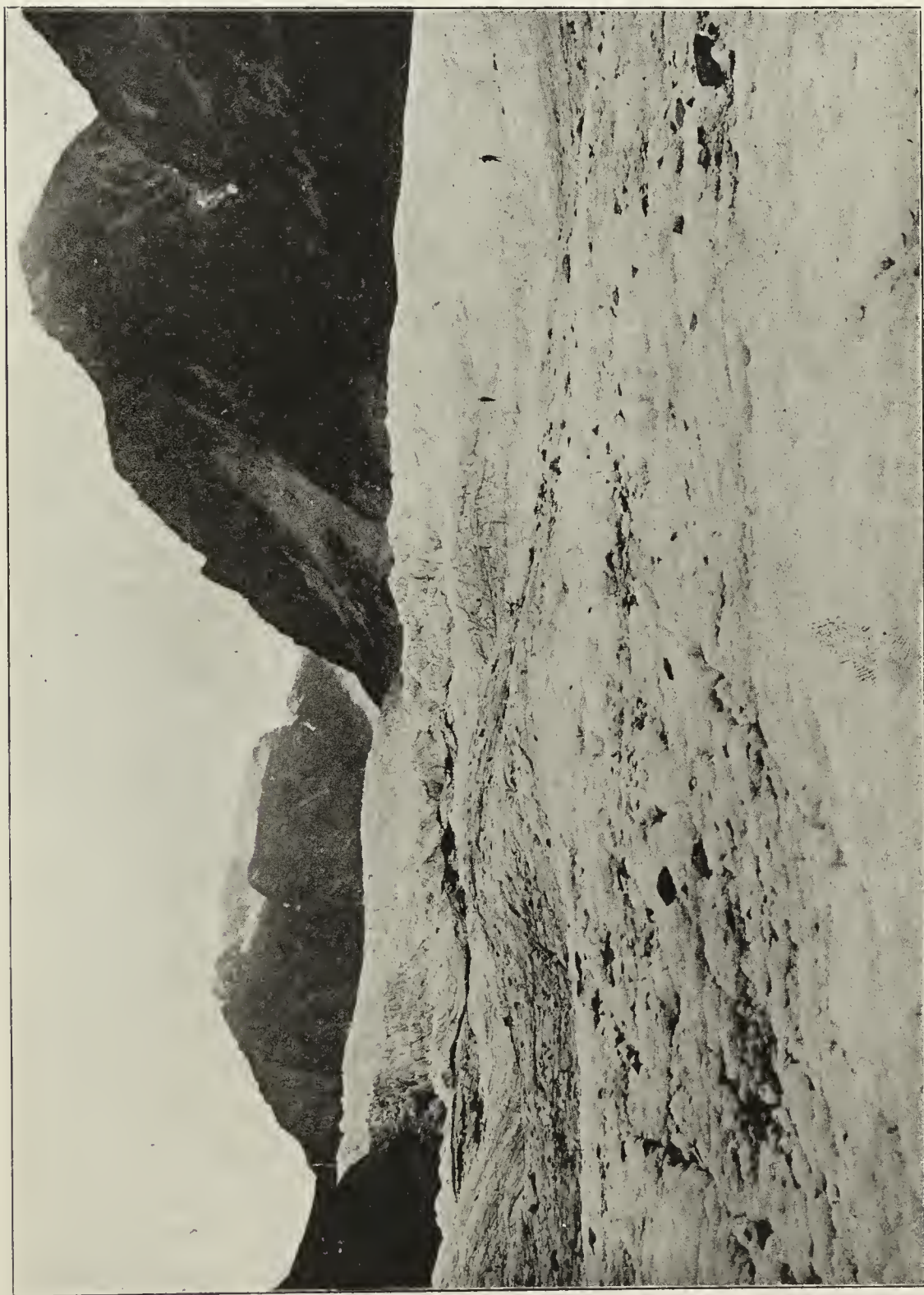
SOUTHERN ALPS.

For beauty and grandeur of scenery the Southern Alps of New Zealand may worthily compare with, while in point of variety they are said actually to surpass, the Alps of Switzerland.

Until recently few of the mountains in New Zealand had been scaled; many of the peaks and glaciers are as yet unmapped; and there is still, in parts of the South Island, a field for exploration and discovery—geographical, geological, and botanical. The wonders of the Southern Alps are only beginning to be known. The snow-line in New Zealand being so much lower than in Switzerland, the scenery, though the mountains are not quite so high, is of surpassing grandeur.

There are extensive glaciers on both sides of the range, those on the west being of exceptional beauty, as, from the greater abruptness of the mountain slopes on that side, they descend to within about 700 ft. of the sea-level, and into the midst of the evergreen





THE FOX GLACIER, NEW ZEALAND ALPS

Photo „New Zealand Government



IN THE SOUTHERN FIORDS OF NEW ZEALAND

Photo, New Zealand Government

forest. The largest glaciers on either side of the range are easily accessible. The following gives the sizes of some of the glaciers on the eastern slope :—

Name.	Area of Glacier		Length of Glacier.		Greatest Width.		Average Width.	
	Acres.		Miles.	Ch.	Miles.	Ch.	Miles.	Ch.
Tasman -	13,664		18	0	2	14	1	15
Murchison	5,800		10	70	1	5	0	66
Godley -	5,312		8	0	1	55	1	3
Mueller -	3,200		8	0	0	61	0	50
Hooker -	2,416		7	25	0	54	0	41

The Alletsch Glacier in Switzerland, according to Ball, in the *Alpine Guide*, has an average width of one mile. It is in length and width inferior to the Tasman Glacier.

Numerous sounds or fiords penetrate the south-western coast. They are long, narrow, and deep (the depth of the water at the upper part of Milford Sound is 1,270 ft., although at the entrance only 130 ft.), surrounded by giant mountains clothed with foliage to the

snow-line, with waterfalls, glaciers, and snow-fields at every turn. Some of the mountains rise almost precipitously from the water's edge to 5,000 ft. and 6,000 ft. above the sea. Near Milford, the finest of these sounds, is the great Sutherland Waterfall, 1,904 ft. high.

In the heart of the Southern Alps is a favourite summer rendezvous for alpinists, which commands some of the most superb mountain views in the world. The ice-clad mountains in the immediate vicinity range from 10,000 to over 12,000 ft. in height. Mount Cook is 12,349 ft.—the highest point in Australasia. The “Hermitage” is a comfortable Government hotel, reached by rail and coach or motor from Dunedin, Christchurch, or Queenstown, and close to the terminal faces of three great glaciers. One of these glaciers, the *Tasman*, is 18 miles long and two miles wide—far larger than any in the Swiss Alps or the American Rockies. Government guides, horses, and all alpine equipment are kept on hand; and alpine huts supplied with food and bedding, high

up in the Tasman valley—the base for ice and mountain excursions—have been established. In this district there are ice-falls and some beautiful Alpine flora. Ski-ing at the head of the Mueller Glacier is a favourite sport.

There are several small hot springs in Canterbury and Westland, but they fade

for many miles, break the coast line abutting on Cook Strait. The city of Nelson is situated at the head of Blind Bay, which has a depth inwards from Cook Strait of about 40 statute miles.

The Provincial District of Canterbury lies to the south of the Marlborough District and to the eastern side of the Island. Towards the north the land is hilly and undulating; followed by a stretch of plain 100 miles long by 30 miles broad, rising at the rate of about 30 ft. to the mile from the sea to the hills, after which the coastal land is part flat and part undulating to the boundary of the Otago Provincial District. To the west of the above-mentioned plain the country is, generally speaking, hilly and mountainous. Large rivers rising in the snow-clad ranges find their way through wide valleys and across the plain to the sea.

Many lakes and high plateaux of considerable size lie within the mountainous area. The most notable of the plateaux is the Mackenzie Plain, with its glacial lakes Tekapo, Pukaki and Ohau. Many of the lakes may some day be utilised for generating hydraulic power. An electric plant has been installed at Lake Coleridge, which supplies power for the city of Christchurch. To the east of the main plain the volcanic hills of Banks Peninsula jut out into the sea and form several good harbours, the principal being Port Cooper, on the north, whereon is situated Lyttelton, the chief port of the district; and on the south the harbour of Akaroa, one of the finest in the Dominion.

There are no other natural harbours in Canterbury, but a good artificial one has been made at Timaru, in the south of the Province.

The Provincial District of Otago, under which denomination is also included the old Province of Southland, is an extensive one, and its physical features are much diversified. The Southern Alps Range, which forms a distinct backbone throughout the northern part of the Island, is more divided into separate mountain chains in the north-west



Photo, New Zealand Government

ORGAN GALLERY, WAITOMO CAVES

into insignificance when compared with those in the North Island.

The general surface of the northern portion of the South Island, comprising the Provincial Districts of Nelson and Marlborough, is mountainous, but the greater part is suitable for grazing purposes. There are some fine valleys and small plains suitable for agriculture, of which the Wairau Valley or Plain is the largest. Deep sounds, extending

and west of Otago, though it still remains the watershed from which short rapid rivers reach the Tasman Sea on the west, and long and more slowly-flowing ones empty themselves into the Pacific Ocean on the east and south, after passing through much hilly country and many fertile plains.

On the whole the province may be described as hilly with parts mountainous, though there is much flat alluvial land in the extreme south, and many good plains and cultivable downs throughout it. Originally there were extensive forests in the south,

mountainous and wooded country, extending to the Tasman Sea, and deeply indented with numerous fiords or sounds. There are also many other lakes, notably Hawea, Wanaka, Manapouri, and Hauroto, some of these being of considerable size.

The chief harbours in this province are Otago Harbour, at the head of which the city of Dunedin is situated, and Bluff Harbour at the extreme south, the port of the town of Invercargill.

The district of Westland, extending along the west coast of the South Island, abreast



MT. CREIGHTON, LAKE WAKATIPU

Photo, New Zealand Government

many of which are only partially cut, and the west coast is still densely forest-clad, but by far the larger area of the province is open tussock and grass land suitable for grazing sheep. The whole province is auriferous, and there are goldfields of considerable extent in the interior.

The inland lakes are very remarkable features. Lake Wakatipu extends over 54 miles in length, but its greatest width is not more than 4 miles and its area only 114 square miles. It is 1,070 ft. above sea-level, and has a depth varying from 1,170 ft. to 1,296 ft. Lake Te Anau is somewhat larger, having an area of 132 square miles. These lakes are bounded on the west by broken

of Canterbury, embraces all the land lying between the tops of the Southern Alps and the Tasman Sea. It is a narrow forest-clad strip of steep mountainous country fringed along the sea by alluvial flats or easier slopes. It is auriferous throughout, and has produced much gold. It also contains the chief coal deposits of the Dominion. Westland has many interesting lakes and glaciers, the latter of which have been referred to above.

The rivers in the South Island are for the most part mountain-torrents, fed by glaciers in the principal mountain-ranges. When the snow melts they rise in flood, forming, where not confined by rocky walls, beds of considerable width, generally covered by enormous

deposits of shingle. The largest river in the Dominion, as regards volume of water, is the Clutha or Molyneux. It is 154 miles in length, but is navigable only for boats or small river-steamers for about 30 miles. The Rivers Buller, Grey, and Hokitika, on the west coast, are navigable for a short distance from their mouths. They form the only ports in the Nelson and Westland Districts. In their unimproved state they admitted, owing to the bars at their mouths, none but vessels of small draught; but, in consequence of the importance of the Grey and Buller Rivers as the sole ports available for the coal-export trade, large harbour-works have been undertaken, resulting in the deepening of the beds of these rivers, and giving a depth up to 26 ft. of water on the bars.

The area of level or undulating land in the South Island available for agriculture is estimated at about 15,000,000 acres. About 13,000,000 are suitable for pastoral purposes only, or may become so when cleared of forest and sown with grass seed. The area of barren land and mountain-tops is estimated at about 9,000,000 acres.

CHRISTCHURCH.

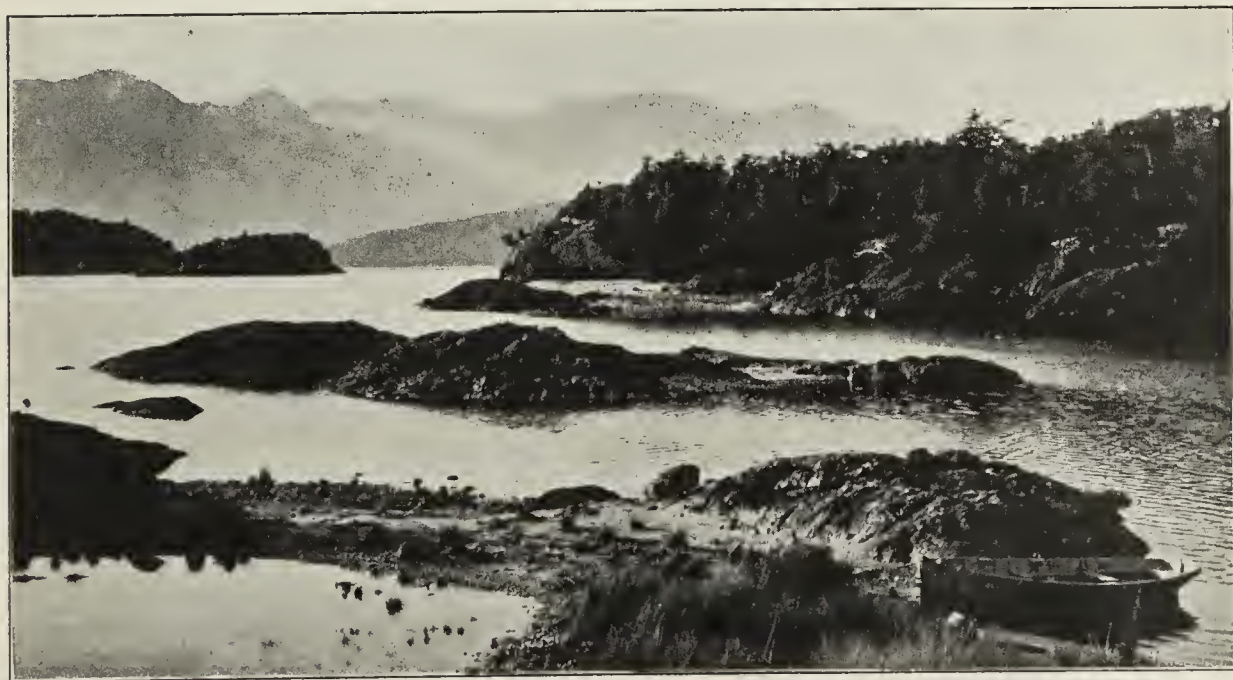
The most fertile portion of South Island is the Canterbury Plains, situated around

Christchurch, which have an area of over 13,000,000 acres. This magnificent agricultural and pastoral region occupies a gently sloping plain which extends from the *dividing range* on the west to the eastern seaboard, and is nearly all covered by medium-sized farms.

Christchurch, the chief town of this portion of the island, which has a population of about 131,000 (Christchurch City, 88,100), stands on the banks of the River Avon about nine miles from its mouth; besides being a fine modern city it is an important railway centre, and is connected with the coast towns of Timaru, Oamaru, Dunedin, and Invercargill, which is the southernmost port of New Zealand, and also with several inland centres of agriculture. The port for Christchurch and the Canterbury plains is, however, Lyttelton, at the mouth of the Avon, which has a population of about 8,000 and is usually reckoned as forming a suburb of the parent city. It is admirably situated on a well sheltered bay. The first railway in New Zealand was built to connect this port with Christchurch, seven miles distant.

DUNEDIN, INVERCARGILL AND NELSON.

Dunedin, which is the capital of the former province of Otago, is, next to Christchurch,



Photo, New Zealand Government
AMONG THE ISLANDS, LAKE MANAPOURI, NEW ZEALAND

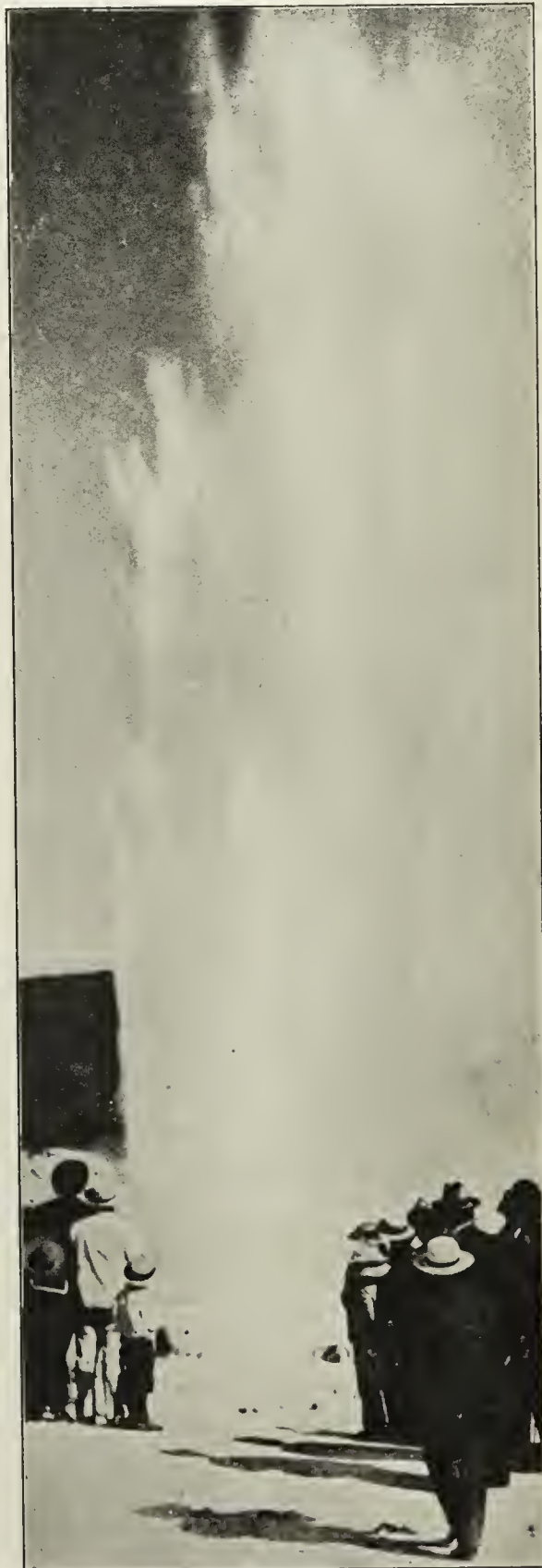
the most important town in South Island, and stands at the head of a fine harbour sheltered by the outspreading arm of the Otago Peninsula. In a town of modern construction, with over 67,100 inhabitants, it is only natural there should be every convenience, but here there is also a quiet air of slow but sure progress without the roar of a metropolis or the tiresome miles of buildings unrelieved by trees or gardens. The Scots in Dunedin are very numerous, as in fact they are in the whole of South Island.

Otago, which, with the former province of Southlands, forms the southern portion of the Island, possesses extensive coal and gold fields, being actively worked, which extend inland to the picturesque region around lakes Wakitipu and Wanaka. These mining districts are all connected by rail and coach with Dunedin and Invercargill, which is the southernmost town in the world, with the exception of Magellanes on the shores of the Magellan Straits in Chilian Patagonia. Only the storm-swept seas of the Antarctic divide this town from the ice-fields which surround the south pole.

Many people will doubtless shiver at the thought of going to a town so close to the regions of perpetual snow, but it must be remembered that many hundreds of miles of ocean divide New Zealand from the Antarctic, and the climate is not nearly so cold as might be expected; 5 deg. of frost being the lowest winter temperature.

The lakes in South Island are surrounded by ridge upon ridge of lofty snow-capped mountains. In the valleys the climate is warm, and trees and shrubs margin the broad sheets of water, some of which, like the Diamond Lake at Paradise, mirror in clear outline the jagged ice-capped peaks which encircle them.

During the spring, when the thaw releases the frozen water on the lower slopes, the rivers, which flow in all directions from the "dividing range," are turned into foaming torrents, and the marshes which intersect many portions of the country are flooded. This sometimes causes considerable loss among the thousands of sheep and cattle which are reared on the breezy plains and marshlands; but the farmers know when to expect the melting of the snows, and consequently are usually able to move their



A GEYSER IN ERUPTION



THE SOUTHERN ALPS *Photo, New Zealand Government*
Minaret and De la Beche Peaks with the Ranfurly and Constance Glaciers



IN THE BULLER GORGE

Photo, New Zealand Government

flocks to higher land before the advent of the floods.

Many rivers of considerable length, such as the Clutha, which rises near Haast's Pass and travels nearly 230 miles before its debouchement into the ocean, cross this territory from their sources amid the glaciers of the Alps. Those flowing down the steep western coast are, however, more rapid, though shorter, than those which water the fertile plains of the east.

The Wairau plains, in the old province of Marlborough, contain some of the finest pasture lands in the world, but many parts of both South and North Island are still covered with peculiarly dense forest.

The fiords of the south-west coast are renowned for the beauty of their scenery,

but from this must be deducted, or added, according to taste, the solitude of this region of water, marsh, and highland, which is open to the steady breezes blowing from the Pacific.

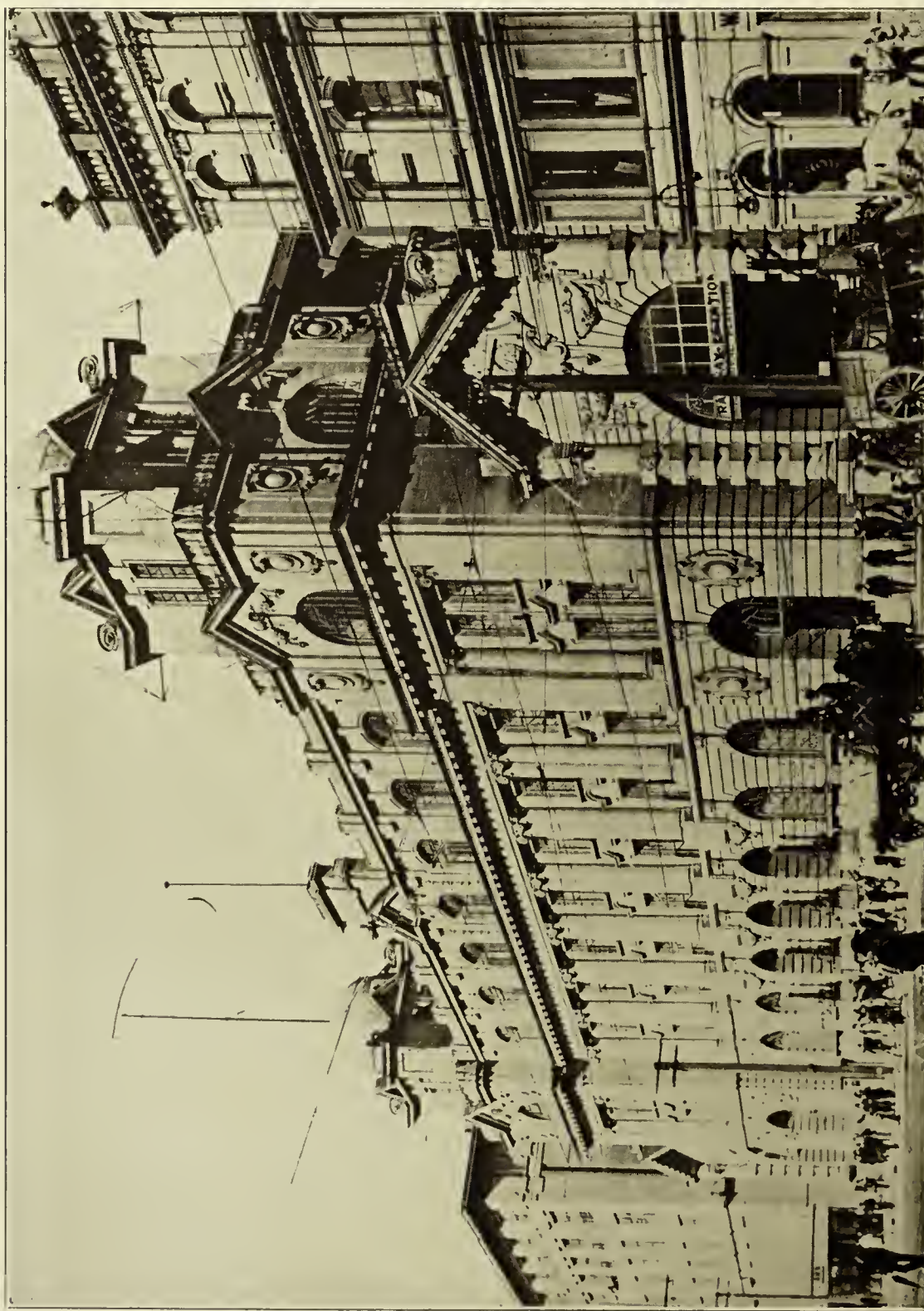
Many small towns are dotted over the interior of South Island. Those in the south are principally devoted to mining, with sheep farming as a subsidiary industry; those on the east are agricultural and pastoral, and those on the west and north are mostly mining centres, surrounded by sufficient cultivated country to supply the demand for necessities.

One of the most pleasantly situated towns on this island is Nelson, facing Tasman Bay. It is partly sheltered by hills, which were once clad to their summits with dense forest.



Photo, New Zealand Government

WELLINGTON, CAPITAL OF NEW ZEALAND
Willis Street



QUEEN STREET, AUCKLAND.
Post Office and Railway Station

Photo, New Zealand Government



Photo New Zealand Government

MT. MACKENZIE AND THE CLINTON RIVER, NEW ZEALAND



HONGI (RUBBING NOSES)

This is the Maori form of greeting and corresponds to the handshake or kiss

Photo, New Zealand Government



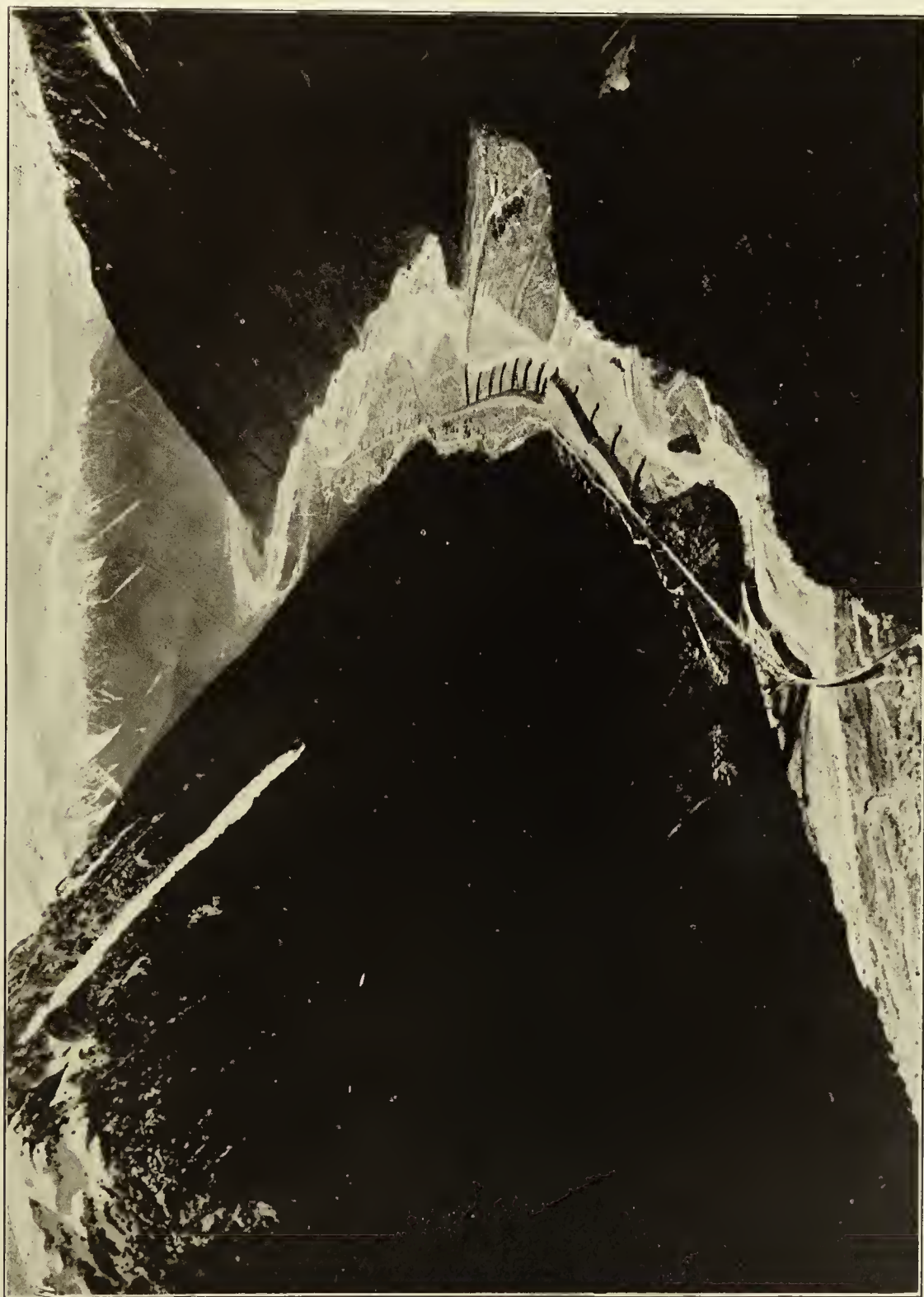
Photo, New Zealand Government

A MAORI BEAUTY



Photo, New Zealand Government

MT. SEFTON 10,350 ft.), SOUTHERN ALPS, SOUTH ISLAND, NEW ZEALAND



OTIRA GORGE SOUTHERN ALPS



Photo, New Zealand Government
NEAR THE BULLER GORGE, SOUTH ISLAND

The town itself is of modern construction, and has a population of about 10,580, if the suburbs are not included. Towns like Dunedin, Christchurch, and Nelson have a manufacturing industry which grows with the population of these islands, for it is a custom in New Zealand to buy home-made articles when possible, failing which those of British manufacture are often specially asked for.

North Island

The extreme length of North Island, from Cape North to Cape Palliser, is 515 statute

Lake Taupo. The largest plain in the North Island, Kaingaroa, extends in a north-easterly direction to the sea-coast in the Bay of Plenty. There are also the pumiceous Waimarino and Murimotu Plains, at the base of the volcanoes, and in other localities several smaller but fertile plains.

Though the greater portion of the central plateau is covered with a volcanic ash or sand, now principally bearing a plant growth of tea-tree scrub (*manuka*), bracken, and tussock, and is to a large extent waste land, it must not be supposed that these lands are valueless. In many places there are swampy



MT. BARRON, MILFORD SOUND

Photo, New Zealand Government

miles, and its total area 44,130 square miles. This Island is, as a whole, hilly, and in parts mountainous, in character, but there are large areas of plains or comparatively level country that are, or by clearing can be made, available for farming purposes. Of these the principal are the plains in the Hawke's Bay District, on the east coast; the Wairarapa Plain, in the Wellington District; a strip of country along the west coast, about 250 miles in length, extending from a point about 30 miles from the City of Wellington to a little north of New Plymouth; and the Waikato Plains, extending from the Firth of the Thames to within about 50 miles of

areas even now carrying good crops of flax which, when prices are good, are cut and milled. Between Taupo and Rotorua and the Rangitaiki River there are several sheep runs. In many places where old Maori *kaingas* have been, European fruit trees, such as apples, cherries, peaches, and raspberries, are still to be found in healthy condition (though quite unattended to), thus proving that these lands are in many places suitable, as far as soil and climate are concerned, for fruit growing; and it is probable that these cheap and neglected lands will, before many years have elapsed, be utilised for fruit production.



CHRISTCHURCH, NEW ZEALAND
Cashel Street

Photo, New Zealand Government

The existence in many places of fine forests proves the suitability of the district for tree-growth, and on this evidence the Government have made very extensive plantations of exotic trees of commercial value, which are all thriving most satisfactorily. The greater part of these plains has, in comparatively recent times, been covered with valuable forest, but repeated burnings by Maoris have caused its disappearance. The frequent burning of the scrub and tussock by Maoris and Europeans during the last sixty years have so impoverished the soil that the present state of comparative barrenness is the result. This repeated burning-off of the scrub is also responsible for the lessened fertility of the gum lands.

The level or undulating country in this island fit, or capable of being made fit, for farming has roughly been estimated at 13,000,000 acres. This includes lands now covered with standing forest and swamps that can be drained, also large areas of clay gum-lands and pumice-covered lands. The clay gum-lands are in their natural state uninviting to the farmer, but by proper

drainage and cultivation they can be brought into a high state of productiveness. Although the area of bush land is still very great, yet, year by year, the amount is being reduced, chiefly to meet the demands of settlement, the trees being cut down and burnt, and grass sown on the ground fertilised by their ashes.

Hilly as the country is, yet, from the nature of the climate, it is especially suited for the growth of English grasses, which will flourish wherever there is any soil, however steep the land may be; once laid down in grass there is very little land too poor to supply food for cattle and sheep. The area of land in the North Island deemed purely pastoral or capable of being made so is estimated at 14,200,000 acres. It is estimated that the area of mountain-tops and barren country at too high an altitude for sheep, and therefore worthless for pastoral purposes, amounts, in the North Island, to 300,000 acres.

The area of land in the North Island still remaining in forest is about 8,000,000 acres, but every year the forested area diminishes as settlement advances. In the Auckland



Photo, New Zealand Government

HIGH STREET, CHRISTCHURCH, LOOKING SOUTH

District are found the celebrated kauri forests, which produce the most valuable of the pine timbers.

VOLCANOES.

The mountains in the North Island are estimated to occupy about one-tenth of the surface, and do not exceed 4,000 ft. in height, excepting a few volcanic cones and the highest peaks of the Kaimanawa, Ruahine, and Tararua Ranges. Of the volcanoes the following are the most important :—

Ruapehu : This mountain lies about 27 miles south-south-east from Lake Taupo. Its highest peak is 9,175 ft., so it rises far above the line of perpetual snow. It is in the solfataras stage, and has on its summit a remarkable crater-lake which is surrounded by walls of ice several hundred feet in height. The waters of this crater-lake are highly charged with sulphuric acid. The water is always warm enough to remain liquid, but there are times when it boils, and is heaved into the air to fall and besmirk the snowy mantle of the surrounding heights. The

Wangaehu River has its source in this crater, and its waters are so poisonous to plants that they will not grow on its banks even for miles after the river has reached the plains and received numerous tributaries.

To the north-north-east of Ruapehu stands Ngauruhoe (7,515 ft.) and the several coalesced cones of Tongariro (6,140 ft.). There was a considerable discharge of ashes from Ngauruhoe in 1909, but no loss of life occurred. Molten lava has been seen in the crater, but it has not overflowed since the European occupation of the country. From the crater of Te Mari there was a flow of lava in 1868.

The country around these volcanoes has been created a National Park, and by reason of its varied interests—active craters, blow-holes, glaciers, hot medicinal springs, crateral lakes, varied alpine flora, and exhilarating climate—it will be certain later on to attract great numbers of visitors.

Mount Egmont : This is an extinct volcanic cone, rising to a height of 8,260 ft. The upper part is always covered with snow.



MAIN STREET, INVERCARGILL

Photo, New Zealand Government

The mountain is, from many directions, a nearly perfect cone, and rising as it does from a plain only a few hundred feet above sea-level it forms a view of imposing beauty. It is called the "Sentinel of Taranaki." Close to its base on the north lies the thriving town of New Plymouth, and the surrounding country is some of the most fertile in New Zealand.

Ruapehu, Tongariro, Taupo, and the thermal vents in the Rotorua district are all on a line of weakness in the earth's crust that reaches its visible terminal at White Island, which is an active volcano in the Bay of Plenty about 35 miles from the mainland.

Without a doubt the hot springs form the most remarkable feature of the North Island. They are found over a large area, extending from Tongariro, south of Lake Taupo, to Ohaeawai, in the extreme north—a distance of some 300 miles; but the principal seat of hydrothermal action appears to be in the neighbourhood of Lake Rotorua, about 40 miles north-north-east from Lake Taupo.

By the destruction of the famed Pink and White Terraces at Lake Rotomahana during the eruption of Mount Tarawera on the 10th June, 1886, the neighbourhood has been deprived of attractions unique in character and of unrivalled beauty; but the natural features of the country—the numerous lakes, geysers, and hot springs, some of which possess remarkable curative properties in certain complaints—are still very attractive to tourists and invalids. The vast importance of conserving this region as a sanatorium for all time has been recognised by the Government, and it is dedicated by Act of Parliament to that purpose.

RIVERS AND ISLANDS.

The principal lakes in the North Island are Taupo, with an area of 238 square miles, Roturua, Tarawera, Rotoiti, Waikaremoana, Wairarapa, and several smaller ones. The effluent waters from some of these lakes will in the near future be utilised for the generation of electrical power.



DUNEDIN

Photo, New Zealand Government



STEAMING CLIFFS, HOT SPRING REGION

Photo, New Zealand Government

The chief rivers of the North Island are the Waikato (which has its source in the Kaimanawa Range), and is slightly under 200 miles in length, the Northern Wairoa, the Waihou, the Southern Wairoa, the Manawatu, Rangitikei, Wanganui, and Mokau. All these rivers except the Rangitikei are navigable for small vessels. There are numerous smaller rivers in this well-watered island, and many of these are capable of being used for the production of electrical power.

For its great length of irregular coast-line the North Island has few harbours that will admit the largest modern liners. There are, however, two (Auckland and Wellington) that will do so, and these are so situated that they form the most convenient receiving and distributing centres. There are several on the West Coast—Hokianga, Kaipara, Manukau, and Kawhia—and on the east coast—the Bay of Islands, Whangaroa, Whangarei, Thames, Mercury Bay, and Tauranga—that are already or can be made available for vessels of 2,000 tons. There

are also the artificial harbours of Gisborne, Napier and New Plymouth, which can accommodate liners in their bays or coastal vessels behind their moles. There is a magnificent harbour at the Great Barrier Island, which, though of little commercial value, would give certain shelter to the largest modern fleet.

There are numerous islands scattered along the coast, and the chief of these are the Three Kings, a cluster of islets lying 38 miles west-north-west of Cape Maria van Dieman. They were discovered in 1643 by Tasman, and named in honour of the day of discovery being the Feast of the Epiphany. Owing to these islets being incorrectly charted, the steamer *Elingamite* was wrecked here some years ago, and many valuable lives lost. Since this, however, their correct position has been found. Other islands are Great Barrier, Little Barrier, Waiheke, Great Mercury, Mayor, and Kapiti. The last-named was the home and stronghold of the famous Maori warrior Ruaparaha; it is now mostly a



CROW'S NEST-GEYSER, TAUPU

Photo, New Zealand Government

public reserve and sanctuary for native flora and fauna.

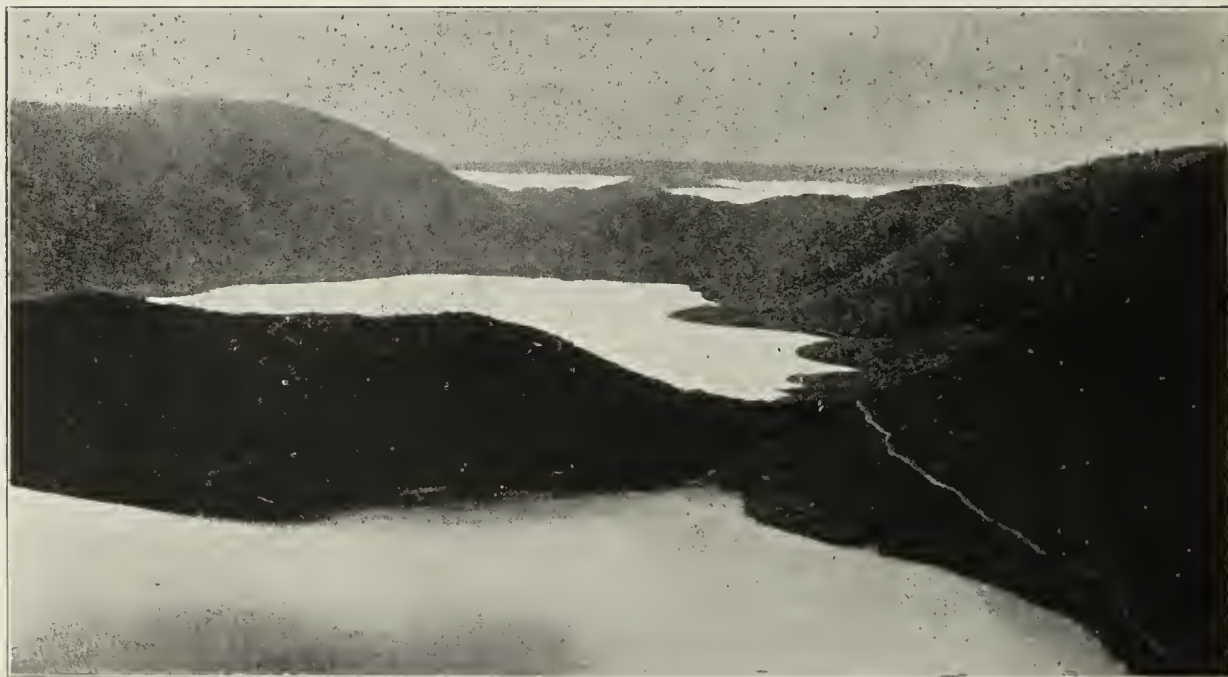
The narrow channel, known as Cook Strait, which separates the North from the South Island, varies in breadth from 16 to 90 miles, and is invaluable for the purpose of traffic between the east and west coasts of the Dominion.

WELLINGTON, CAPITAL OF NEW ZEALAND.

On the north-eastern shore of Cook Strait—through which a stiff breeze is almost con-

in fact, one of the premier ports of the Dominion.

When Wellington first came into being most of the houses were constructed of wood, partly on account of the scarcity of stone and bricks, and also because earthquakes were feared, as several shocks had been felt in the sixties and seventies; but massive stone buildings have long since taken the place of the log cabins, and a feeling of security has been born of the absence of any seismic disturbance.



Photo, New Zealand Government

GREEN, BLUE AND ROTORUA LAKES, NORTH ISLAND

tinually blowing—lies Wellington, the capital of New Zealand. Apart from its importance as the seat of Government, and its fine buildings and streets, being situated in the south of North Island it is assured, by its central position alone, an ever-increasing share in the prosperity of the country.

The fine harbour of Port Nicholson (Lambton Harbour), on which the capital stands, besides being the port-of-call for several of the chief liners plying between Europe and New Zealand, also enjoys more than the average share of the coasting and inter-colonial maritime commerce with Australia, India, and the Pacific Islands. It is,

It is interesting to note here that in North Island the days during the summer months are two hours shorter than in England, while in winter they are two hours longer.

The population of Wellington is 105,400, or, including the suburban boroughs of Onslow, Karori, and Miramar, it is about 110,680. The chief industries, other than the maritime activity, are woollen mills and meat works. There is a very fine public library; four hospitals; a museum, containing among other interesting specimens a fine collection of Maori carving; several good clubs, residential and otherwise; many hotels; and an extensive electric



WATER LILY PONDS, ROTORUA, NORTH ISLAND

Photo, New Zealand Government



THE INFERNO, LIKITERE, ROTORUA

Photo, New Zealand Government

tramway service connecting the city with the suburbs, and also a cable car to Kelburne. Among the newspapers published in the capital must be mentioned *The New Zealand Times*, *The Dominion*, *The Evening Post*, *Truth*, *The Free Lance*, *The Triad*, *Progress*, *Journal of Agriculture*, *Mercantile Gazette*, and the *New Zealand Gazette*.

The Guide to New Zealand gives the following account of the most interesting excursions in the vicinity of the capital :—

“ A railway trip to Featherstone embraces some pretty forest scenery, and includes a journey up and down the Rimutaka Incline, on which the Fell system is employed to work trains ; length of incline 3 miles, grade 1 in 15. Day's Bay, across Wellington Harbour (7 miles). Native bush, grounds, pavilion. Very pretty spot. Refreshments may be obtained ; Lyall Bay (3 miles) reached by electric car, a very pleasant place to spend a few hours, beautiful beach and ideal spot for surf bathing. Belle Vue Gardens, Lower Hutt, are reached by rail or vehicle ; the railway line and road for some distance skirt the seashore. The gardens are beautifully laid out, and there is a first-class hotel in the grounds, where luncheon or afternoon tea may be obtained. There are croquet and

tennis lawns. The trip to Island Bay, going by Oriental Bay and returning by Newtown, of *vice versa*, by motor car or taxi cab, is interesting and enjoyable. Electric cars run through Newtown to the Bay. Excellent drives are to Lower Hutt (8 miles), Taita (12 miles), Porirua (14 miles), Lowry Bay (14 miles), Karori (4 miles). ”

TARANAKI.

One of the most interesting portions of North Island is Taranaki, situated on the west coast. It formed the disputed territory which was one of the contributory causes of the New Zealand War of 1860, and was the theatre of operations at the commencement of this long-lasting campaign.

Taranaki possesses some of the richest agricultural land in the Dominion ; and fruit for home consumption is largely cultivated on land which but a few years ago was covered with dense forests of pine and giant ferns, which attain an unusual height and size in New Zealand.

NEW PLYMOUTH.

This is a coast port at the foot of the ex-volcano Mount Egmont. It is connected



BOILING MUD POOL, ROTORUA

Photo, New Zealand Government



Photo, New Zealand Government

OVERFLOW FROM LAKE TARAWERA, ROTORUA

by railway with Wellington, and has a population of about 14,970. It is the only important town in the Taranaki territory, and is known as the "Garden of New Zealand."

The *New Zealand Index* gives the following interesting description of the favourite excursion from New Plymouth:—

"There are many interesting drives in and about New Plymouth, the best perhaps being to Parihaka, the largest Maori village in the Dominion. The ascent of Mount Egmont is, however, the great excursion, the time necessary being two or more days. Leaving town, the mountain house is reached by a journey of two stages, the first being a pleasant drive of 15 miles over fairly good roads, to the limit of the Forest Reserve.

The second stage (*i.e.*, from the Reserve line to the mountain house, a distance of 4 miles) is done on horseback. From the mountain house (a sort of Government hospice, under the control of a local committee), which stands at an elevation of 3,200 ft., to the summit of the mountain, is two miles; and this portion of the journey must be done on foot and should on no account be attempted without a guide, as, although not extremely difficult, it is dangerous without such assistance. The view from the top is magnificent, and of an exceptionally extended range, owing to the absence of other mountains in the immediate neighbourhood. The crater is covered with perpetual snow, under which beautiful ice caves are formed at certain seasons of the year. The best months in which to visit the mountain are January, February, and March, as during the remainder of the year the snow lies too thick to admit of the ascent. The Huatoke Stream runs through New Plymouth."

AUCKLAND.

Perhaps for historic as well as for general interest the Auckland Peninsula in the extreme north of the islands stands before any other portion of the country. It was here that the British Standard first fluttered in the New Zealand breeze, and the Treaty of Waitangi was signed, which gave to the Empire the *Britain of the South*.

Auckland forms the most northern portion of New Zealand, and includes, besides many rivers and harbours, numerous hot springs and lakes. Notable among the latter is Taupo, which is over 100 miles in circumference and has an average depth of 700 ft. Its sides are vertical like those of a tank, and the line of volcanoes which traverses this portion of New Zealand passes across it, causing the lake to be surrounded by volcanic rocks.

The Thames mouth is encompassed by peaks of volcanic origin intersected by swamps, and is of little use for agriculture.



MOUTH OF THE WAIROA GEYSER, NORTH ISLAND

Photo, New Zealand Government

A portion of the central region is also mountainous and composed of rocky plateaux covered with coarse tussock grass and brown fern.

Auckland, the old capital of New Zealand, is the largest town in the country. Being situated on a navigable inlet of the Hauraki gulf it possesses one of the finest harbours in the Dominion, and enjoys a considerable

KAURI GUM.

It is in the Auckland Peninsula that the Kauri gum is dug from the soil in the forests of kauri pines, which still cover a considerable portion of this territory but do not grow south of Taranaki. In the early days, when New Zealand was known only to a few whalers in the South Pacific, the wood of the Kauri pine was largely used for repairing



MOUTH OF WAIROA GEYSER
Showing white silicate formation

Photo, New Zealand Government

maritime commerce which is yearly increasing as the remaining unappropriated lands of North Island are brought under cultivation by the great natural increase in the population, and by the influx of emigrants from the United Kingdom. The population of the City is 102,070, or, including the suburbs, it is about 164,450. It possesses all the conveniences of a thoroughly modern city, including electric trams, public libraries, art galleries, museums, hotels, clubs, and fine shops and streets.

the ships after the buffetings of the southern seas and ice floes, and is still greatly valued for its durability and elasticity.

Kauri gum is used in the manufacture of high-quality varnish, also in linoleum-manufacture, but the market price fluctuates greatly, and of late years has declined, owing to several reasons, but chiefly to the high price ruling for turpentine and other oils used in conjunction with the gum in the various manufactures for which it is employed, also to the increased use in American



RUAPEHU FROM THE PLAINS
A volcanic cone (9,000 ft.), having a remarkable crater-lake at the summit, subject to slight eruptions producing much steam. The lake lies 300 ft. below the enclosing peaks, which are clad in snow and ice

Photo, New Zealand Government



MAORI BOYS IN THEIR CANOE

Photo, New Zealand Government

factories of China wood-oil, an inferior substitute for gum much used in linoleum manufacture. As the demand for general labour in New Zealand increases, the occupation of gum-digging upon the barren country north of Auckland becomes less attractive, and the number of diggers has greatly declined, until at the present time barely 1,000 persons are so employed.

THE HOT LAKES.

The heart of the thermal springs and hot lake district, which covers a wide area in Auckland, is the town of Rotorua, the affairs of which are managed entirely by the Dominion Government. It is situated 171 miles south-east of Auckland City, and is the favourite New Zealand tourist and health resort. The resident population, however, numbers only just over 2,000. The inhabitants of Rotorua pay no taxes, being asked only to contribute to the Fire Brigade and the Library.

The best known "sights" of hot-spring-land are : the Government Spa at Te Aroha,

distant 115 miles from Auckland ; the scenery, baths, and golf course at Okoroire (131 miles) ; the Waitomo, Aranui, and Ruakuri Caves, situated in a picturesque valley of the "King Country"—one of the unique features of these caves, which are of limestone stalactite formation, is the glow-worm grotto, which is several hundreds of yards long and about 30 ft. in height and width ; the glow-worms being so numerous and brilliant that the boat which conveys visitors through this lake cavern can be navigated by their light alone.

In the near vicinity of Rotorua, which possesses a fine sanatorium standing in beautiful grounds, is the famous Rotorua Lake with its romantic island of Mokoia, celebrated in Maori folk lore as the dwelling place of Tutanekei, a chief, whose love, Hinemoa, the daughter of a neighbouring chief, swam across the lake from the shore, a distance of three miles, to him after their union had been forbidden by Hinemoa's father.

It would be impossible to enumerate all the wonderful sights in this unique region,

but they include Maori villages, modern bathing establishments, fishing, shooting, geysers, mud volcanoes, boiling lakes, mineral springs, caves, and mountain, lake and forest scenery. There is a Government Balneologist at the Sanatorium in Rotorua, who advises invalids as to the proper treatment. The springs are of varied chemical composition, and range in temperature from 50 deg. to 212 deg. They have been divided by Sir James Hector into five classes : saline, alkaline, alkaline-silicious, sulphurous, and acidic.

completed in 1886 by the Wellington-Manawatu Railway Company. The entire railway system, with the exception of a few miles of private lines used for specific purposes, such as the carriage of coal, timber, or stone, is now owned and controlled by the State. The total length of the lines in operation is about 3,500 miles.

THE MAORIS.

Before the colonisation of New Zealand by Europeans, the earliest navigators and ex-



GOVERNMENT BUILDINGS, WELLINGTON
The largest wooden building in the world

Photo, New Zealand Government

RAILWAYS.

In the year 1860 a contract was made for the construction of the first New Zealand railway. Up to 1870 there were only 46 miles of line in operation. In that year the construction of railways came to be part of the public-works policy just then initiated, and the Railways Act of 1870 authorised certain lines to be made and the surveys of others completed. In 1876 the abolition of the provincial territorial divisions placed the earlier-constructed railways in the hands of the Central Government. At that time there were 718 miles open for traffic.

In December, 1908, the Government acquired by purchase the railway between Wellington and Longburn, 84 miles in length,

plorers found a race of people already inhabiting both Islands. Papers written in 1874 by Mr. (afterwards Sir) William Fox and Sir Donald McLean (then Native Minister) state that at what time the discovery of these Islands was made by the Maoris, and from what place they came, are matters of tradition only, and that much has been lost in the obscurity enveloping the history of a people without letters. Nor is there anything on record respecting the origin of the Maori people themselves, beyond the general tradition of the Polynesian race, which seems to show a series of successive migrations from west to east, probably by way of Malaysia to the Pacific. Little more can now be gathered from their traditions



CUBA STREET, WELLINGTON

than that they were immigrants, and that they probably found inhabitants on the east coast of the North Island belonging to the same race as themselves—the descendants of a prior migration, the history of which is lost.

The tradition runs that, generations ago, the Maoris dwelt in a country named Hawaiki and that one of their chiefs, after a long voyage, reached the northern island of New Zealand. Returning to his home with a flattering description of the country he had



THE BANK CORNER, LAMBTON QUAY, WELLINGTON

Photos, New Zealand Government.

discovered, this chief, it is said, persuaded a number of his kinsfolk and friends, who were much harassed by war, to set out with a fleet of double canoes for the new land. The names of most of the canoes are still remembered, and each tribe agrees in its account of the doings of the people of the principal canoes after their arrival in New Zealand; and from these traditional accounts the descent of the numerous tribes has been traced. Calculations, based on the genealogical staves kept by the *tohungas*, or priests, and on the well-authenticated traditions of the people, indicate that about twenty-one generations have passed since the migration,

country and its inhabitants was obtained, which could not have otherwise been had.

There are 63,670 Maoris and about 10,000 half-castes spread over both the North and South Islands, many of whom are living in the European fashion. Nearly 7,000 Maori and half-caste children attend the 130 native village schools; and between 300-400 are resident pupils in the twelve secondary schools for the higher education of Maori children.

POSTAL SERVICE.

The Post and Telegraph Department is really a "Service" rather than a "Department." By reason of its ramifications, it



ORIENTAL BAY, WELLINGTON
A seaside suburb of the capital

Photo, New Zealand Government

which may therefore be assumed to have taken place about 525 years ago.

The position of the legendary Hawaiki is unknown, but many places in the South Seas have been thus named in memory of the mother-land. The Maoris speak a very pure dialect of the Polynesian language, the common tongue, with more or less variation, in all the eastern Pacific islands. When Captain Cook first visited New Zealand he availed himself of the services of a native from Tahiti, whose speech was easily understood by the Maoris. In this way much information respecting the early history of the

has probably greater potentialities for usefulness to the public than any other organisation, and in New Zealand very full use is made of it.

Around the money-order and savings-bank accounts as a nucleus there has been built up a system of accounting which receives from all the departments of the Post and Telegraph Service various revenues which are due to the Treasury, and in addition to this, includes a vast amount of work for other departments of the State.

In accordance with the standards laid down, the Post Office is probably conducting



A SUBURB OF AUCKLAND
View from Mt. Eden

Photo, New Zealand Government

the most legitimate banking business in the Dominion. It receives interest-bearing deposits from the public and invests the money received in liquid securities, not dealing in any way with land or actively participating in commercial ventures. In its money-order and postal-note business it issues drafts on places both within and beyond New Zealand, and pays drafts drawn on New Zealand, either by its own agencies or by the agencies of foreign countries with which it has relations.

It receives amounts for credit of almost every Department in the Government service, and clears them from its central office in Wellington. In fact, it performs for the general public and the general Government various duties which, in quite another sphere of activity, are usually performed by a commercial bank. On account of the smallness of the majority of its transactions, the business, which bulks very large even from the £ s. d. point of view, is very much larger from the standpoint of the number of trans-

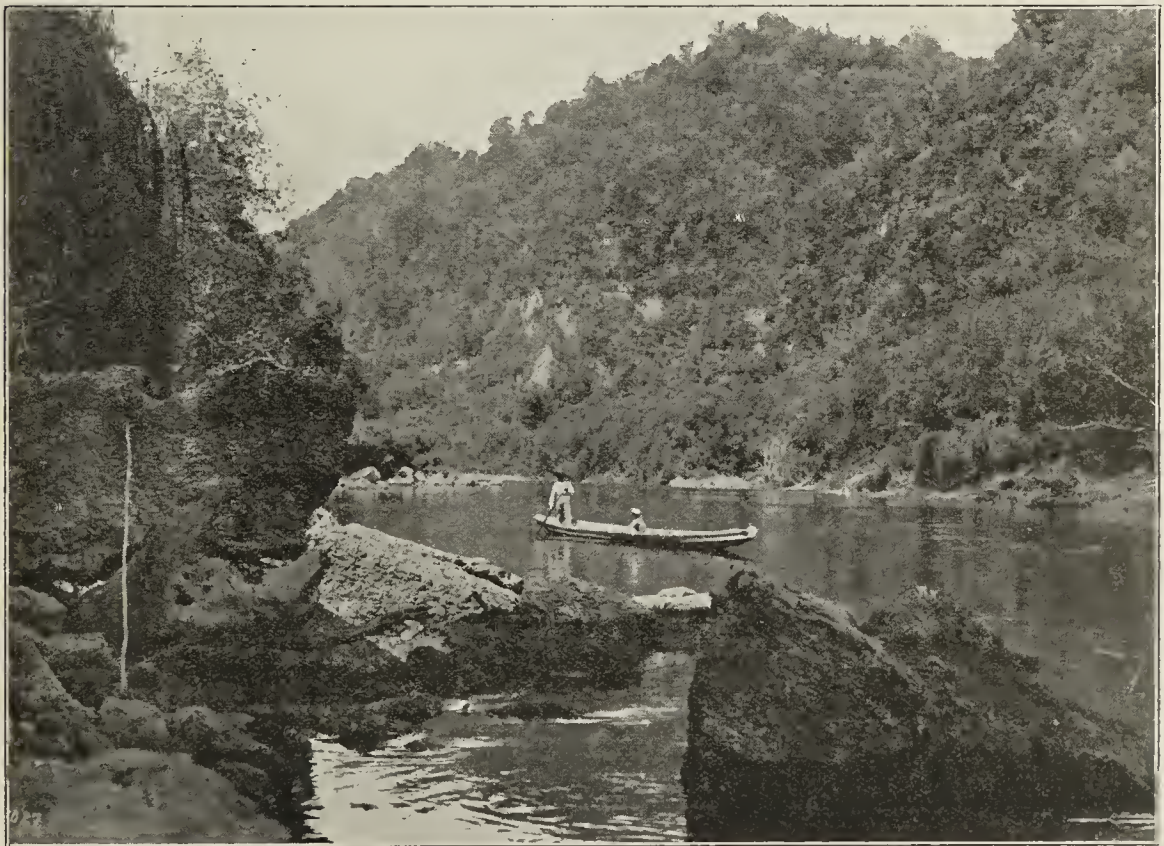
actions involved, which run into millions in each of the main divisions of the business. There are about 2,000 post offices, with 13,767 miles of telegraph line.

PACIFIC EARTHQUAKE ZONE.

The Wellington earthquake of 23rd January, 1855, received a full notice in Sir Charles Lyell's classic work *The Principles of Geology*, and probably largely on that account the attention of the scientific world was attracted to this feature of the natural phenomena of New Zealand. But since that earthquake, during which the level of the land in the neighbourhood of Wellington Harbour was raised about 5 ft., there has been no shock in the New Zealand region proper which has at all approached the destructive phase. Indeed, of some 1,800 earthquakes recorded as having origins in or near New Zealand, that of 1848 is the only other earthquake comparable in intensity to that of 1855; and the average intensity of all the earthquakes thus recorded is between III and IV on the



MT. EGMONT, TARANAKI



WANGANUI RIVER, NEW ZEALAND

Photos, New Zealand Government

**KAURI GUM DIGGERS***Photo, New Zealand Government***Successful Maoris with a mound of gum**

Rossi-Forel scale, or in other words just sufficient to make pictures hung on the walls move a little, and to cause doors and windows to creak or rattle slightly. In about twelve or fifteen instances the force has been sufficient, near the origin, to overturn some chimneys (for the most part badly constructed ones), and in a very few buildings to crack walls or ceilings of faulty design. In about thirty other earthquakes such phenomena have been noted as the stopping of clocks, without any damage. The great majority of shocks have passed unperceived by the ordinary observer, and have been recorded only by means of instruments. In short, earthquakes in New Zealand are rather a matter of scientific interest than a subject for alarm. Their scientific interest is largely due to the light they throw upon questions connected with the movements taking place in the earth's crust. Most people know now that the crust of the earth is not the stable thing that the ancients supposed it to be,

but is constantly rising here and falling there, and wrinkling itself into folds that cause most of our mountains and valleys and other striking surface features. All the great movements that appear on the surface are due to the repacking of the rocks below, especially, as the earthquakes seem to show, at a depth of 15 to 20 miles.

Overseas Commerce

New Zealand, in point of settlement, is the youngest Dominion of the Empire. The Dominion was not settled to any degree until the year 1840. It was in that year that the first pioneers of the present capital city of Wellington landed in vessels from England—the year also of the declaration of British Sovereignty over the two islands. Wars with the Maoris kept the country unsettled for some years, and what external trade she had was chiefly with Australia and Great Britain. Until the discovery of a



CITY OF AUCKLAND, NORTH ISLAND

Photo, New Zealand Government

satisfactory progress of commercial refrigeration in 1880, her output, except of gold, was very small. Butter realised only a few pence per pound for salting purposes, and sheep were valuable only for their wool, of which increasing quantities were each year shipped away. The carcasses mostly were boiled down for tallow.

With the advent of refrigeration, the outlook changed very considerably, and with much foresight and initiative, the foundation was laid of the present extensive and flourishing export trade to Britain of frozen meat and dairy produce. To-day, though the Dominion is Britain's most distant customer, and though her position so far as the great centres of population requiring to be fed, is concerned, is one of extreme isolation, she yet supplies the Mother Country with more

dairy produce (butter and cheese), and more frozen mutton and lamb than any other country, is the greatest *per capita* purchaser of British goods, and incidentally has the greatest *per capita* export of produce of any other country in the world.

British Board of Trade statistics show that New Zealand in one year supplied Great Britain with butter and cheese to the value of £17,713,320, while Denmark's contribution was of a value of £16,832,320, Canada's £5,630,641, and Australia's £4,755,320. The New Zealand figures exclude other milk products, such as milk powder, of which she exports considerable quantities.

There are other records which New Zealand holds. Of frozen mutton and lamb she has supplied Great Britain with an annual average of about £10,249,774 worth, as



DIGGING KAURI GUM

Photo, New Zealand Government

Kauri Gum, the fossilised resin of the Kauri Pine Trees, is found some feet below the surface of the soil on the site of extinct Kauri forests and is used for making high-class varnish and in the manufacture of linoleum



Photo, New Zealand Government

A CREEK IN NORTH ISLAND

192

against Australia's £4,714,428, and the Argentine's £5,893,042—almost 50 per cent. of the total value of supplies from abroad. In this connection it should be pointed out that the Dominion, in common with Australia, is now meeting with greatly increased competition from South America.

Other important items of the Dominion's exports are wool, tallow, fruit, Kauri gum, hides and skins, gold, timber and flax. A considerable trade is being developed in

raising. It would give immigrants with little capital better prospects in the Dominions, and would incidentally increase the small farmers in the Dominions. At present these industries without the market abroad, by themselves do not offer enticing prospects. The possibilities in bee-keeping, fruit-growing, pig-raising and poultry-keeping in New Zealand are unlimited, if only a reasonable price can be obtained for the goods in Britain, and undue influence in regard to foreign



A SHEEP STATION IN NEW ZEALAND

Photo, New Zealand Government

Britain in honey, and the excellent prospects for New Zealand eggs on the British market have also been demonstrated in recent shipments. A good reliable market, at paying prices, for "small lines," such as apples, honey and eggs, must mean a great deal to the Dominion—more so than might be imagined—and in some measure to the Mother Country. It means that men with limited capital, who could not otherwise do so, can commence on the land in these lines and gradually build up for entering the greater industries of dairying and sheep

imports which have largely established themselves is not exerted in competition.

The Dominion's total exports now amount to about £50,000,000. This represents about £37 per head of population (exclusive of the Dependencies of New Zealand), a considerably higher ratio than that of any country. The United Kingdom takes annually about £35,000,000 worth of New Zealand produce and sells to this Dominion merchandise to the value of about £25,000,000.

The average annual value of the imports into New Zealand is £49,000,000, and of



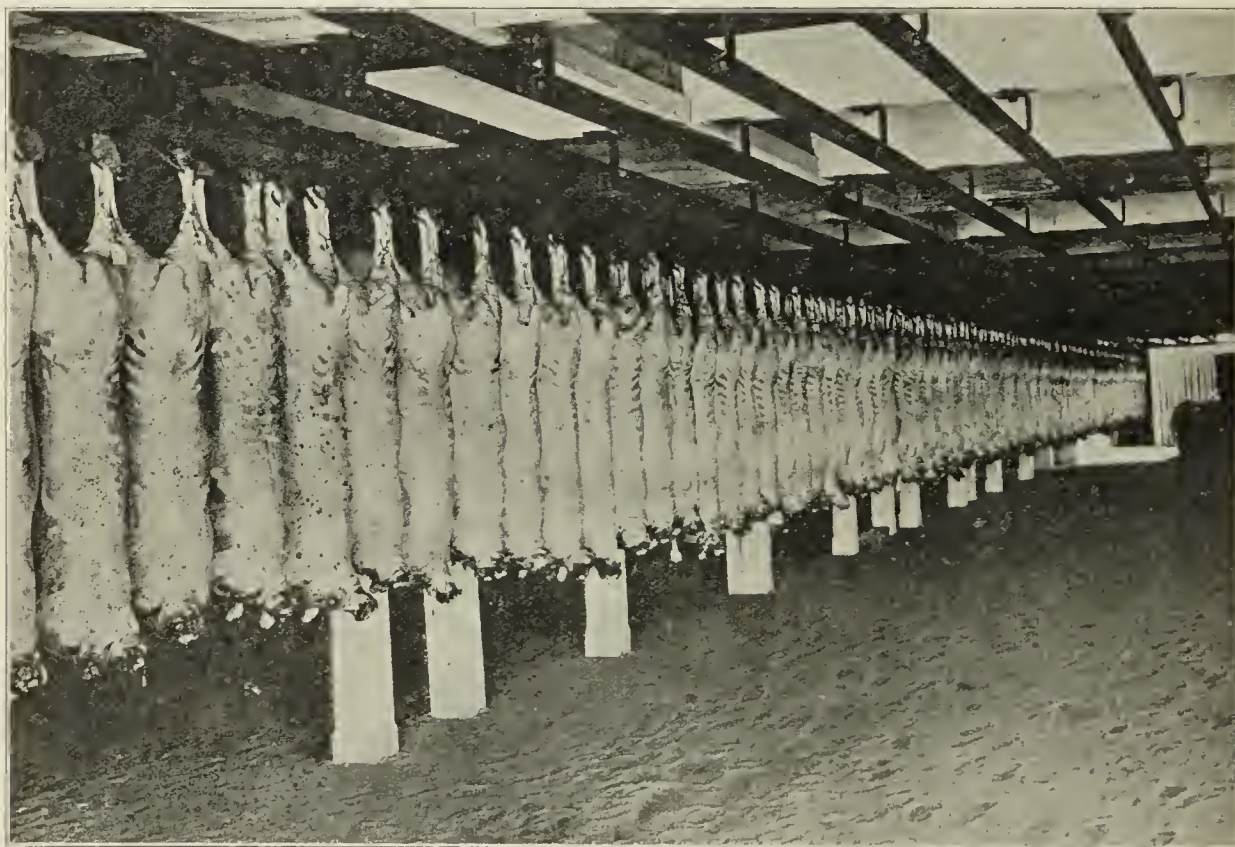
Photo, New Zealand Government

LYTTELTON HARBOUR

this sum 73 per cent. comes from Empire countries and 51 per cent. from Britain herself. The *per capita* purchase of goods from Britain averages over £18, and it is safe to state that few, if any of the other countries of the world purchase at so high a rate from Britain.

Other countries of the Empire which supply goods to New Zealand include the following :—Australia, five millions' worth ; Canada, four millions ; India and Ceylon,

and colours, tramway plant, metal manufactures, stationery and photographic material. Fiji supplies New Zealand with sugar, Ceylon with tea, and Canada chiefly with printing paper, fish and timber. As for the United States, her exports to New Zealand comprise chiefly motor spirit and other mineral oils, motor cars, tobacco, electrical machinery and cinematograph films. Japan's contributions are chiefly satins, silks and fancy goods. Cotton textiles and apparel figure very



FROZEN MUTTON

Photo, New Zealand Government

The freezing chamber in a Meat Export Store. The floor is covered with snow

two millions ; and Fiji, one million. The foreign countries supplying the remaining 25 per cent. of the imports are chiefly the United States, ten millions sterling, and Japan, half a million. The imports from European foreign countries are small, and chiefly comprise silk goods and scents from France and Belgium, and dairy machinery from Sweden.

The five millions of imports from Australia comprise many general articles, chiefly, however, coal, hardwood, tobacco, dried fruits, ready-made clothing, hosiery, paints

humbly. It will therefore be seen that to no great extent in goods that Britain can supply is she passed over by New Zealand.

New Zealand gives an average preference of 15 per cent. to British goods over those of foreign countries. The tariff is scientifically compiled to provide revenue, to protect and assist young industries, and to discriminate in favour of Empire trade. Some of the main articles of diet not produced in New Zealand, such as tea, salt and sugar, enter free. In the case of imports from Britain which do not compete with local manufac-



HEMP INDUSTRY
Drying Phormium Fibre after washing

Photo, New Zealand Government

tures—such as cotton piece goods (un-worked), sewing cottons, fencing and other wires, artificers' and engineers' tools, bar steel and iron, pipes and tubes, electrical machinery and materials, industrial and agricultural machinery, printing paper,—this all enters free from Britain, but is charged 10, 15 or 20 per cent. *ad valorem* if from foreign countries. It will be seen how great a proportion of British exports to New Zealand, therefore, enter duty free (over 13 millions from whole Empire).

New Zealand's future trade possibilities have only been exploited to a comparatively small degree. The country is capable of carrying a very much larger population, and the land of producing far more plentifully. In the ten years 1913 to 1923, her exports of produce were more than doubled, rising from 22 millions to 45 millions, and the imports also rose from 21 millions to 43 millions—over 100 per cent. In more recent years they have again increased to 50 and 49 millions respectively. New Zealand has

vast mineral resources which will later be available for manufacture when an increased population renders their exploitation a payable proposition.

Dependencies of New Zealand

New Zealand, like many of the self-governing dominions, now possesses its own dependencies, situated several hundred miles from its shores, over which it exercises exclusive control, subject only to the British Crown. These are all islands in the Pacific Ocean, and have a total area of 948 square miles, with an estimated population of just under 14,000. In addition to these *Colonies* of New Zealand there is the Mandatory sphere in Western Samoa, with an area of about 1,050 square miles and a native population of over 40,000. This latter protectorate has been fully described under *Mandatory Territories*, and the former comprise the following widely scattered groups.

AUCKLAND ISLANDS.

This small group is situated to the south of Stewart Island. During a whaling voyage, Captain Abraham Bristow, in the ship *Ocean*, discovered these islands on the 18th August, 1806. The discoverer, who named the group after Lord Auckland, again visited the islands in 1807, and then took formal possession of them. They lie about 290 miles south of Bluff Harbour, their accepted position being given as latitude $50^{\circ} 32'$ south, and longitude $166^{\circ} 13'$ east. They have several good harbours. Port Ross, at the north end of the principal island, was described by the eminent French commander, D'Urville, as one of the best harbours of refuge in the known world. At the southern end of the island there is a through passage extending from the east to the west coast. It has been variously named Adams Strait and Carnley Harbour, and forms a splendid sheet of water. The largest of the islands is about 27 miles long by 15 miles broad, and is very mountainous, the

highest part being about 2,000 ft. above the sea. The west coast is bold and precipitous, but the east coast has several inlets. The wood on the island is, owing to the strong prevailing wind, scrubby in character. The New Zealand Government maintains at this island a depôt of provisions and clothing for the use of shipwrecked mariners.

CHATHAM, ANTIPODES AND BOUNTY ISLANDS.

The outlying group of the Chatham Islands, lying between the parallels of $43^{\circ} 30'$ and $44^{\circ} 30'$ south latitude, and the meridians of $175^{\circ} 40'$ and $177^{\circ} 15'$ west longitude, 480 statute miles east-south-east from Wellington and 536 miles eastward of Lyttelton, consists of two principal islands and several unimportant islets. They were discovered by Lieutenant Broughton and named by him in honour of the Earl of Chatham. The largest island (Chatham Island) contains about 222,490 acres, of which an irregularly-shaped lake or lagoon absorbs 45,960 acres. About



WAIHI GOLD MINES, THAMES, AUCKLAND Photo, New Zealand Government
These celebrated gold mines have yielded a very large amount of gold



FLAX GROWING
Carting the flax to the mills

Photo, New Zealand Government

one-quarter of the surface of the land is covered with forest, the rest with fern or grass. The hills nowhere rise to a great height. Pitt Island is the next in size; the area is 15,330 acres. The greater portion of both islands is used for grazing sheep.

Among other islands in the surrounding area of sea are the Antipodes; an isolated group, consisting of several detached rocky islands lying nearly north and south over a space of four to five miles, in lat. $49^{\circ} 41' 15''$ and long. $178^{\circ} 43' E.$; the Bounty Islands, a little cluster of islets, thirteen in number and without verdure, discovered in 1788 by Captain Bligh, R.N., of H.M.S. *Bounty*, in lat. $47^{\circ} 43' S.$, and long. $179^{\circ} 0' 30'' E.$, and Campbell Island, which was discovered in 1810 by Frederick Hazelburgh, master of the brig *Perseverance*. It is very mountainous, with a circumference of about 30 miles, and possesses several good harbours.

KERMADEC ISLANDS.

These Islands are situated between $29^{\circ} 10'$ and $31^{\circ} 30'$ south latitude, and between

$177^{\circ} 45'$ and 179° west longitude. They are named the Raoul or Sunday Island, Macaulay Island, Curtis Island, and L'Espérance or French Rock. The principal island, Sunday, is 600 miles distant from Auckland, and lies a little more than half-way to Tonga, but 100 miles to the eastward of the direct steam-route to that place. It is 300 miles eastward of the steam-route to Fiji, and 150 miles westward of the steam-route from Auckland to Rarotonga. Macaulay Island (named after the father of Lord Macaulay) and Curtis Island were discovered in May, 1788, by Lieutenant Watts, in the *Penrhyn*, a transport ship. The remainder of the group was discovered in 1793, by Admiral Bruni d'Entrecasteaux. The Admiral gave the name of "Kermadec" to the whole group of islands, after the captain of his consort ship *L'Esperance*, and the name of the Admiral's ship *La Recherche*, was given to the largest island. The name so given was not continued, but that of "Raoul" has taken its place, which would appear to have been given after the sailing-master of

the *La Rechreche*, whose name was Joseph Raoul. The name of "Sunday" may also have become attached to the island from the fact that it was discovered on a Sunday.

The islands are volcanic, and in two of them signs of activity are still to be seen. The rainfall is plentiful, but not excessive. The climate is mild and equable, and slightly

of its surface, and, except in a few places, covered with forest. The soil everywhere on the island is very rich, being formed by the decomposition of a dark-coloured pumiceous tuff and a black andesitic lava, with which is closely mixed a fine vegetable mould. The great luxuriousness and richness of the vegetation bear witness to the excellence of



Photo, New Zealand Government

A SOUTH SEAS GIRL

warmer than the north of New Zealand. The following are the areas of the islands and islets of the group: Sunday Island, 7,200 acres; Herald group of islets, 85 acres; Macaulay Island, 764 acres; Curtis Island, 128 acres and 19 acres; L'Espérance, 12 acres: total, 8,208 acres.

Sunday Island is 20 miles in circumference, roughly triangular in shape, and at the highest point 1,723 ft. above the sea-level. It is rugged and broken over a very large extent

the soil, which is everywhere—except where destroyed by eruptions, and on the steep cliffs—the same rich loam. Want of water is one of the drawbacks. Three of the four lakes on the island are fresh, but so difficult of approach as to be practically useless.

Cook Islands

RAROTONGA.

This is certainly the finest island in the Cook Group, both in point of scenic attrac-



RAROTONGA, THE WHARF

Photo, New Zealand Government

tions and in respect of its general productiveness. It is a particularly good specimen of the volcanic order of islands, and the rugged grandeur of its mountain-peaks and the variety and luxuriance of its vegetation combine to present one of the most romantic and picturesque scenes that one could possibly find even in the South Seas, where the romantic and picturesque are supposed to abound. Attaining, as it does, a height of 2,100 ft., the island is well watered; and a belt of rich soil, varying from one to two miles in width, extends all round from the mountains to the sea. The circumference of Rarotonga is over 20 miles, and the total area is 16,500 acres.

The land at present is not being utilised to anything like the full extent of its possibilities; but the Land Titles Court is doing good work, and the island has now been surveyed and owners ascertained for each block. With the advent of a larger European population a steady increase in the yield of the staple products of the island may be looked for. In the case of copra it will be

some years before the production can be greatly increased, but the coco-nut palm is being extensively planted, and, given favourable conditions, the results may be awaited with confidence. The banana trade is developing very satisfactorily, and large areas are being planted with this fruit. Rarotonga is particularly well adapted to the growth of tropical fruit.

Avarua, on the north coast, is the principal village of the island, and the seat of the Islands Administration. It is also the port-of-call for the Union Steam Ship Company's steamers, which visit this group twice a month, once from Auckland and once from Wellington. A substantial building known as the "Whare Manuiri" has been erected here for the accommodation of visitors, and it is expected that a tourist traffic will be developed. A refrigerating and ice plant, subsidised by the Islands Administration, is now at work in Rarotonga. The native population of Rarotonga is about 4,000, in addition to which there are over 200 whites on the island.

MANGAIA.

This is one of the largest of the annexed islands, being about 30 miles in circumference, and having an area of some 30 square miles. Given proper landing facilities, it would be in no way behind Rarotonga, except in the lack of that impressive mountain scenery that lends such a charm to the latter island. Mangaia is somewhat peculiar in structure. At a short distance inland from the shore there rises an almost perpendicular wall of dead coral, about 100 ft. high, as if the reef of earlier days had been lifted bodily by some convulsion of nature. This *makatea*, as it is called, runs right round the island, and is perforated by numerous caves and crevices, which in olden times were used as depositories for the dead, as well as for storage and other purposes.

These caves still supply, in the calcareous formations in which they abound, the material from which the natives manufacture some of their household implements. The top of the *makatea* averages about a mile in width, and is well adapted to the growth of

the citrus family fruits. The interior face of this coral rampart slopes down gradually into a basin of rich swamp land containing extensive taro-plantations, and from this the land rises again in a succession of low hills to a central plateau, about 650 ft. high, known as the "Crown of Mangaia."

These taro-swamps still supply most of the food of the Mangaians, although for many years the tribes have lived in the villages of Oneroa, Tamarua, and Ivirua, on the coast. The interior of the island, which contains some splendid valleys, is well watered by streams which filter through below the base of the *makatea* into the sea. The population, according to the latest returns, is about 2,000, in addition to several whites. The people are said to display a greater degree of industry than is usual among natives of the Pacific islands, and this fact, combined with the natural resources of the island, promises well for the future prosperity of Mangaia.

There are considerable areas of waste land awaiting cultivation, and the natives are



RAROTONGA, THE SCHOOL HOUSE

Photo, New Zealand Government



RAROTONGA, LONDON MISSION GROUNDS

Photo, New Zealand Government

becoming alive to the necessity for planting these with coco-nuts. Citrus fruits are already growing in profusion, and it is estimated that with proper cultivation the output could be increased twenty-fold. Mangaia produces the best coffee in the Group. The principal exports are bananas, oranges, copra, coffee, pines, kumaras, taros, coco-nuts and limejuice. The trade of the island has hitherto been hampered to a considerable extent in consequence of the difficulty of shipping produce.

The reef, which encircles the island at a short distance from the shore, was without an opening, and communication between the island and the ocean could only be obtained by crossing the reef in native canoes. This process, where cargo was concerned, was necessarily slow and costly—it took as long to ship 50 tons over the reef at Mangaia as it did to ship 200 tons at Rarotonga—besides which the produce was always liable to be damaged by salt water. Steps were taken, however, to have a suitable boat-passage opened through the reef, and the chief hind-

rance to the development of the trade of this island removed.

MAUKE.

This island is low and flat, and is skirted by a belt of ironwood (*toa*), which was formerly found in large quantities, and was much sought after by traders. Mauke, like Mangaia, has a fringing reef which, however, does not readily lend itself to the process of crossing in canoes. A landing has to be effected on the edge of the reef itself, and one reaches dry land by wading or being carried through the shallow water covering the depression in the coral between the outer edge and the shore. Mauke also has its *makatea*, or raised coral area, but it merges almost imperceptibly into the volcanic formation of the centre, and the general level of the island all over is about 60 ft. above the sea. The island is small, its area being only about $4\frac{1}{2}$ square miles; but it is remarkably fertile, and, notwithstanding that in common with the other islands of the Group it is very imperfectly planted, it exports a considerable

quantity of copra and oranges. The island has now been surveyed and subdivided. The native population is about 500, the whites numbering ten.

ATIU.

This island is much like Mauke in appearance, having the same high fringing reef and the same dead coral formation over the greater part of its area. It is much larger, however, its area being about 32 square miles, and it has four times as much unused land as Rarotonga. Atiu is a valuable island, and exports quantities of copra, oranges, coffee, and limejuice. All the usual island fruits grow well, but a fuller development of the resources of the island is retarded through the lack of proper facilities for shipping produce. Arrangements have been made, however, for the construction of an aerial tramway to convey cargo from the shore to the edge of the reef. The cavernous formation, which is so marked a feature of the *makatea* at Mangaia, is also present in the coral-rock portion

of Atiu, and must, no doubt, be found more or less in all islands that owe their existence in any degree to the upheaval of a sea-worn coral reef. The late Ngamiaru Ariki was practically King of Atiu, although he had lived for many years in Rarotonga, and as such he exercised a measure of sovereignty over Mauke and Mitiaro, both of which were conquered by the Atiuans before the introduction of Christianity. The native population of the island amounts to about 1,000, but this does not represent anything like the total of the Atiuan tribes, who are largely represented in the subordinate islands, as well as in Tahiti. There are several whites on Atiu. The settlement on this island is some distance inland, on the flat summit of the low central hill to which the island rises.

AITUTAKI.

Aitutaki combines the features of the volcanic island and the atoll ; indeed, it may be regarded as an atoll in course of formation, and it affords a good illustration of the



Photo, New Zealand Government

A NATIVE DANCE, WESTERN SAMOAN ISLANDS

different stages of the process. The island is almost surrounded by a barrier reef, which supports several fruitful islets, and on the south-east is distant five miles from the land. On the western side it approaches much nearer, the entrance to the Avatapu Channel being about three-quarters of a mile from the wharf at Arutanga, the principal village on the island. At the northern point of the island the reef fringes the shore as in the other main islands of the Cook Group, the barrier stage having not yet been reached.

This island approaches more closely to Rarotonga in the general appearance of fertility than any of the others, and it can also claim to possess a considerable degree of scenic attractiveness. It rises somewhat abruptly on the western side to a height of 360 ft., and slopes away gradually to the eastern coast. The area is about seven square miles. The lagoon on the Arutanga side of the island is shallow, and can be used only by vessels of a very small class; but on the eastern side it is much deeper, and devoid of coral patches, and there are several places in the reef where, it is believed, a navigable channel might be formed.

The land at Aitutaki is divided among the people in small sections; but though each family has quite enough land for its support, it has seldom more than an acre or two in any one place, and the more remote sections are apt to be neglected. The native population is about 1,500, two-thirds of these living in the four settlements on the western side, and the remainder in the villages of Vaipae and Tautu on the east. In addition there are a number of absentees. There are about sixteen white people on the island.

PENRHYN.

This is a good specimen of the pure atoll. It is merely a ring of coral, about 48 miles in circuit, supporting a number of low islands, from 200 to 300 yards across, and enclosing a lagoon of 90 square miles in area, of which 24 square miles are more or less covered with pearl-shell. There are three passages into the lagoon, the principal one having a depth of 18 ft. at low water, and there is sufficient wharf accommodation at Omoka for the small class of vessel that visits the island. The other village at Penrhyn, Te Tautua, is some ten miles distant. The pearl-shell fishing is the main industry of the island, but

considerable quantities of copra are now being exported also.

The practice followed with regard to pearl-shell fishing is to divide the lagoon into three parts, which are alternately closed against fishing for a certain period. When the interdiction is removed from the area the natives may dive without restriction beyond the payment of a small fee to the Government. After the naked diving has been in operation for a time the modern dresses are allowed to be brought into requisition until the limit of time has been reached. That area is then closed, and the same procedure is repeated in another portion of the lagoon. By this means each area is given a rest for about a year and, as the shell is said to grow very rapidly at Penrhyn, the supply is well maintained. An Ordinance of the Federal Council prohibits the removal of shell of less than 4½ in. in diameter. Over 90 tons of pearl-shell, representing an amount of £9,300, were exported from the northern islands during one year, and it would be safe to say that the greater part of this came from Penrhyn, from which island alone over 100 tons annually were formerly obtained. The lagoons at Penrhyn and Manihiki have been taken over by the Crown, and proclaimed as reserves for public pearl-shell fishing, and regulations controlling fishing have been made. The total population is about 400 natives and three whites.

MANHIKI.

This is also an atoll, but, unlike Penrhyn, it has no opening through the reef into the lagoon, and when the natives wish to visit the neighbouring island of Rakahanga their boats have to be carried across the narrow strip of land separating the lagoon from the sea. The island consists of about two square miles of land, encircling a lagoon of some six miles in diameter. A good deal of pearl-shell has been obtained from Manihiki, but some years ago it was found necessary to close the lagoon, as the shell-beds had been fished almost to the point of exhaustion. The lagoon has been proclaimed a public reserve for pearl-shell fishing. The natives of this island have some reputation for their skill in the manufacture of hats. Walking-sticks and paddles inlaid with pearl-shell, are also made. The principal export is copra, and as the natives are beginning to see the

wisdom of thinning out the superabundant growth of their palms the production of this item should materially increase. The native teachers of the London Missionary Society look after the education of the children of the island. The total population is about 500, four of whom are whites.

SMALL ISLANDS OF COOK GROUP.

Among the small islands in this area is Mitiaro, a coral islet lying about 40 miles to

lies about 125 miles to the north-east of Rarotonga, and close to the Island of Atiu. It belonged to the late Ngamaru Ariki, and was by him presented to His late Majesty King Edward for the benefit of his subjects in the Group. The island has been systematically planted with coco-nut palms, and it is anticipated that it will in time yield 200 tons of copra annually. At present it is uninhabited.

Palmerston is an atoll, with a land-area of one square mile, lying to the north-west of



Photo, New Zealand Government

R. L. STEVENSON'S TOMB, VAILIMA HILL, APIA, SAMOA

the north-east of Atiu, and an equal distance from Mauke. Its area is only about four square miles, and it nowhere rises higher than 50 ft. above sea-level. It contains some good land, however, and produces a considerable amount of copra. In the centre is a pretty little lagoon, bordered by a belt of swamp. The population, according to the last returns, was about 210 natives and one white.

Takutea is the smallest island in the Cook Group, its area being about 300 acres. It

Rarotonga, some 273 miles distant. The reef carries a number of small islets, which are in the occupation of the descendants of the late William Marsters, an old English sailor. One of these, Joel Marsters, acts as Resident Agent, and he and six other members of the family constitute the Island Council. The lagoon, which is about eight miles in diameter, does not carry pearl-shell at present, but it is hoped that spawn may be successfully introduced from other islands. The planting of the land is being well looked

after by the Marsters family. The population numbers 107.

The two small islands, Manuae and Au-o-Tu are enclosed within one reef and are known as the Hervey Isles—a name that is frequently applied to the Cook Group as a whole. They contain approximately 500 acres and 1,000 acres, respectively, of good coco-nut land, and under the careful cultivation of two white men, to whom they are leased, they will before long produce an immense amount of copra. There are twenty-nine natives on the islands, employed as labourers.

Suwarrow is a valuable atoll, 530 miles from Rarotonga. Its value lies chiefly in its lagoon, however, the land-area being very small. The lagoon is from eight to ten miles long, and about eight miles across at the widest part, and it makes a splendid harbour, having an entrance sufficiently deep to admit vessels drawing up to 20 ft. of water. The island is under lease "for the purpose of re-

moving guano or other fertilising substance therefrom, and of planting the land with coco-nuts, and for collecting pearl-shells, and for other purposes of a like nature."

A portion of one of the reef inlets, known as Anchorage Island, is vested in the Lords Commissioners of the Admiralty as a reserve for naval purposes. Large quantities of pearl shell of excellent quality have been obtained from the lagoon.

The island of Rakahanga lies about 25 miles to the north of Manihiki. It is not so large as its neighbour, and the lagoon does not contain any pearl-shell, but otherwise the two islands are very much alike. They are owned and inhabited by the same people, and what has been said concerning Manihiki is true, for the most part, of Rakahanga also.

Concerning Danger Island (*Pukapuka*), which lies away towards the north-west corner of the annexation boundary, Colonel Gudgeon, late Resident Commissioner, writes—"At Pukapuka I found a very



Photo, New Zealand Government

APIA BAY, UPOLO ISLAND, WESTERN SAMOA

similar population, who have now some knowledge of the Rarotongan language, but whose language is not intelligible to the Maori of the Pacific. This is such a primitive people that I considered it advisable for the present to leave them under their own ancient form of government, inasmuch as they are seldom visited by Europeans, and

an area of 100 square miles, and a circumference of 40 miles by road, contains approximately 64,000 acres. It consists entirely of uplifted coral, and is probably the result of a series of upheavals. In general formation it takes the shape of two terraces, the lower being about 90 ft. above sea-level, and the other about 220 ft. At Alofi, the fring-



Photo, New Zealand Government

**LAKE LANUTOO, IN THE ISLAND OF UPOLO,
WESTERN SAMOA**

produce only a little copra." The island is a small atoll of about three miles in diameter, and the lagoon produces some pearl-shell. The population numbers about 490.

NIUE.

This island was formerly in the Cook Islands Administration, but in 1903 it was placed under a separate Government. Niue, the largest of the annexed islands, having

ing reef is broken by a narrow boat-passage, partly natural and partly the result of improvements effected by H.M.S. *Mildura* many years ago. Alofi is the port of entry for Customs. There are landing places at Avatele and at Tuapa, where Togia, the "King" of Niue, resides. Ships may obtain good water at Alofi and Avatele at small cost.

Although so rocky that it is for the most part unploughable, Niue is by no means

unproductive. All the usual tropical fruits grow well, and large trees are found averaging from 18 in. to 2 ft. 6 in. in diameter, and in some cases attaining a diameter of 4 ft. and running up to 100 ft. in height. Large areas of the island are covered with forest, and it is estimated that there are millions of feet of timber suitable for milling purposes, including ebony and other hardwood. A good deal of this timber, however, is situated in a rocky country, and it is questionable if it would pay to cut it and bring it out. Niue is well provided with roads, there being about 65 miles connecting the various villages with the principal landing-place. A careful survey of the land was made some years ago; the roads were traversed throughout, the area of the island determined, and the coast-line defined.

There are many extensive caves in Niue, and concerning these the surveyor who visited the islands, says: "There is one at Lakepa, I was told, having passages which can be measured by the mile. One that I visited at Vairopepe is extremely beautiful. It is situated about 200 yards from the sea on the northern coast, and is formed of a number of galleries and terraces, one below the other. Stalactites and stalagmites are in great profusion, and group themselves into all kinds of fantastic shapes. In one gallery the roof appears to be studded with lilies carved out of alabaster. As one descends to the lower galleries the sensation is decidedly weird. The gurglings and reverberations of the swiftly flowing water is heard deep down in dark subterranean channels, which are evidently connected with the sea, for, ever and anon, a mighty gust of wind impelled by the huge rollers breaking on the reef outside, strikes the visitor, and it requires a steady nerve and a firm foothold to avoid being swept into the seething cauldron below. If these caves were in an accessible position they would be a great draw to tourists."

On account of the porous nature of the rock there are no streams in Niue, and consequently fresh water is scarce. A supply is obtainable from the caves, but the difficulty of carriage is necessarily considerable, and the water is frequently brackish. Concrete tanks have now been constructed in the principal villages. These are roofed over with galvanised corrugated iron, and provide a sufficient catchment-surface to fill them during the

rainy season. The people thus have a reliable supply of good drinking water.

The principal drawback to the development of Niue trade has been the want of regular communication, but this has now been overcome by the institution of a subsidised schooner service with Auckland, and it is anticipated that a considerable increase of trade will follow. The chief industry is the manufacture of hats by the natives, who are very expert plaiters, and an extensive market is obtained for the hats in the neighbouring islands and New Zealand. Some 400 or 500 tons of copra are exported, and the production is capable of very considerable increase. The climate of Niue compares very favourably with other islands of the Pacific. The shade temperature in winter is about 70 deg., and in summer it rarely exceeds 96 deg. The native population of Niue is about 4,000, exclusive of about 580 absent in other islands or at sea. The Niueans are naturally of a roving disposition, and numbers of the men go to Tonga, Samoa, and Malden Island. Many go under engagement as labourers, and return on the expiration of their term. The white population numbers about twenty persons.

PACIFIC ISLAND PLANTATIONS.

No land is sold by the natives of the Cook Islands or Niue, but considerable areas have been leased in Rarotonga to European settlers. It is recognised that the prosperity of the islands depends in great measure on the settlement of the spare lands by a good class of white planters, and it is hoped that before long additional areas in Rarotonga, as well as portions of the adjacent islands of Mauke and Atiu, will be open for lease. At present there are difficulties in the way of securing leases from the natives, but the work of surveying the land and defining the native titles is proceeding rapidly, and every effort is being made to bring the unused lands into profitable occupation. It is desirable that the intending settler should have a capital equal to at least £10 for each acre he purposes taking up. The coco-nut palm takes from eight to ten years to reach bearing point, and during that time the planter must maintain himself by growing bananas or securing some outside employment. When the palms are in full bearing, however, the

annual value of the crop may be estimated at not less than £6 per acre, and this may be regarded as a practically assured income for sixty years or more.

MISSIONS AND EDUCATION.

The educational requirements of the islands are met by missionary effort. The London Missionary Society has established village schools in the various islands, and the Roman

similar number of scholars. The teaching in these institutions is more advanced than that in the village schools, and they may be considered in the light of secondary schools for the Islands. The Sisters of St. Joseph have a good school at Avarua, Rarotonga, where music is included among the subjects taught; and in the village of Titikaveka the Seventh-day Adventists have also a school.



PEACE CELEBRATIONS IN WESTERN SAMOA *Photo, New Zealand Government*
The tight-rope walker

Catholic Mission and the Seventh-day Adventists are also maintaining schools, though to a less extent. The London Mission has six schools in Rarotonga, three in Mangaia, four in Aitutaki, one in Atiu, two in Mauke, one in Mitiaro, two in Penrhyn, two in Manihiki, one in Rakahanga, one in Pukapuka, and one in Palmerston. There is also a boarding-school at Tereora, Rarotonga, which has between sixty and seventy boarders, and a boarding-school at Araura, Aitutaki, with a

A school with a European teacher has been established in Niue, and good work is also being done in the village schools of Niue, of which there are eleven, and 1,000 children are there being taught reading, writing, and arithmetic in the vernacular. Nearly all the younger Niueans are able to read and write in their own language. For Samoa, see *Mandatory Territories*, also *Pacific Islands* and *Papua*.)

ROSS DEPENDENCY.

Far to the south of New Zealand is situated the very latest and southernmost Dependency of the British Empire. It comprises that portion of the Antarctic Continent which surrounds the Ross Sea, and extends southwards in the form of a wedge from the Antarctic Circle to the South Pole.

By an Imperial Order in Council of July 30th, 1923, the coasts of the Ross Sea, with the adjacent islands and lands were proclaimed British Territory under the adminis-

tration of the Governor-General of New Zealand.

This frozen region is historically famous as the scene of the gallant and successful efforts of Captain Scott and Party to reach the South Pole. Although forestalled by the equally courageous achievement of the Norwegian explorer Amundsen, the Scott expedition surveyed and charted much of the annexed region, which now bears such famous names as Oates Land, King Edward VII Plateau, Beardmore Glacier, King Haakon VII Plateau.



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